

THE BIOLOGIST



Vol. XVI, No. 2

March-May, 1935

PHI SIGMA

BIOLOGICAL HONOR SOCIETY

"The object of Phi Sigma is to promote interest in biological research. Although originally designated as an honorary biological research society, it should now be considered as a working guild of biologists interested in research. In effect, election to Phi Sigma should be an opportunity for better work, rather than merely election to an honorary society."

Mile Posts:

- 1915 March 17, Alpha Chapter organized, Ohio State University.
- 1916 May, Central Governing Body organized, BIOLOGIST first issued.
- 1917 June, last War-time BIOLOGIST issued.
- 1921 February, BIOLOGIST revived.
- 1924 December, First National Convention, Constitution revised, Washington, D. C.
- 1925 December, Second National Convention, First Scientific Program, Kansas City.
- 1926 December, Third National Convention, Second Science Program, Philadelphia.
- 1927 December, Third Science Program, Nashville.
- 1928 December, Fourth National Convention, Coat-of-Arms adopted, Fourth Science Program, New York.
- 1930 January, Council Meeting, Ritual Revised, Norman, Okla.
December, Fifth National Convention, Fifth Science Program, Cleveland.
- 1931 Phi Sigma Letters Registered, U. S. Patent Office.
- 1932 December, Sixth Science Program, Atlantic City.
- 1933 June, Sixth National Convention, Seventh Science Program, Chicago.

Expansion:

The Constitution provides that: "An active chapter may be established in any institution of learning which requires for graduation the equivalent of four years of collegiate work, and which is equipped with facilities for research work. - - - Any petitioning group must be active for at least one year before it may be granted a charter."

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WHO'S WHO

In This Issue

Edwin Linton: "Reminiscences of a Helminthologist."

Dr. Linton is one of the grand old men of American biology. The present article tells of part of his activities in his purely professional work. Only those who have been privileged to know him in the more intimate circle of his friends see the true stature of the man. Like all really great characters his development has not been one-sided. The M. B. L. Club of the Marine Biological Laboratory at Woods Hole, Mass., bears witness to his versatile talents. He has not only acted as its presiding officer, but has taken active, and effective, part in its dramatic and musical activities. Endowed with a splendid bass voice he has been a rock of strength in the double-bass section of Professor Gorokhoff's Woods Hole Choral Society. In the theatricals which were long a dominant part of the summer-school social life he has played active parts even up to recent years. It is no small tribute to the marine biological stations of the Laboratory and the U. S. Fisheries that Dr. Linton cast his lot with them each summer. His presence and his personality have been alike a challenge and an inspiration to many a young biologist making his first summer's attempt at research in either institution.

Dr. Linton's name is starred in "American Men of Science." He received the silver medal of the Paris Exposition in 1900. He is a member of the following societies: the American Association for the Advancement of Science, the Society of Naturalists, the Society of Zoologists, the Society of Parasitologists, the Academy of Natural Sciences of Philadelphia, the Georgia Academy of Sciences, and other national and foreign organizations.

National Convention Proclamation

In accordance with usage and constitutional requirements, I hereby proclaim to the chapters of Phi Sigma that the National Council has approved a National Convention to be arranged in conjunction with the next regular winter meeting of the American Association for the Advancement of Science at St. Louis, Missouri.

The date of the convention, to be determined later, will fall between Monday, December 30, 1935, and Saturday, January 4, 1936.

A scientific program will be a feature of the convention, and it is the earnest desire of the National Council that each chapter be well represented.

PAUL A. WARREN,
Chancellor.

REMINISCENCES OF A HELMINTHOLOGIST

EDWIN LINTON,

Zoological Laboratory, University of Pennsylvania

In attempting to comply with the request of the Editor of THE BIOLOGIST for an article, which, it was suggested, might be of the nature personal reminiscences, I have drawn largely upon a paper which I read at our zoological seminar a few months ago.

AMONG the many acts of a now considerably lengthened life which were performed without taking thought of entailed consequences is to be recorded the promise to contribute to this seminar some reminiscences of a helminthologist.

According to the Century Dictionary a helminthologist is: One who is versed in helminthology. Turning to the word helminthology we find that it is built up from the Greek *ελμινς*, combining form *ελμινθ*, a worm, and *λογία*, which appears as the termination *ology* in a long list of English words. The word is then defined: The science of worms, especially parasitic worms.

This appeal to the dictionary left me unsatisfied. As I began to recall, incidents in my life which had had more or less to do with certain humble members of creation that ordinarily we prefer not to think about, the human element pervaded those memory pictures to such a degree, that I felt that it would make my task less difficult, and the narration less distressing to the listener if I could find warrant for speaking of some of the good companions whom I have encountered in my helminthological quests.

In my search for the desired authorization to indulge what I felt would prove to be an irresistible urge, I turned to the ancient literature of the Hebrews, and there found what I was looking for.

In one place the ancient writer makes his hero, Job, say:

"I have said to corruption thou art my father; to the worm, thou art my mother and my sister". In another place in the poem Job observes: "How much less man that is a worm, and the son of man which is a worm." Further, the author of the 22nd Psalm confesses: "But I am a worm;" and the Isaiah of chapter 41 begins the 14th verse with these words: "Fear not, thou worm Jacob."

A somewhat different, but still human, slant is indicated in Pistol's opinion of Falstaff: "Vile worm, thou wast o'erlooked even in thy birth."

BOYHOOD

For the earliest of my helminthological adventures I must take you back to the late fifties and early sixties of the last century. That was, of course, before I could lay claim, in the slightest degree, to the title helminthologist. It was a time, moreover, when bare-footed country boys, calling for the weekly paper at the post-office, which was also a department store in a small way, saw displayed on the shelves glass jars containing sticks of candy striped like a barber's pole, licorice-root, and peppermint lozenges (usually pronounced lickerish-root and lozengers). Also there were displayed, with eye-arresting legends, such family necessities as Smith's Soothing Syrup, Brown's Paregoric, Jones's Cathartic Pills, Davis's Pain-killer and Robinson's Vermifuge. But I shall not dwell upon those far-off days. It is enough to say that there was a brisk demand for all those nostrums. So let us close the door on *Oxyurus vermicularis* and *Ascaris lumbricoides* and allow them place in these reminiscences only, perchance, as they may be considered portents of what the future was to unfold.

It is interesting to note in the succession of events which go to make up a life the doors of opportunity that open by the way. It so came about that Professor A. E. Verrill, of Yale, in whose laboratory I was working in 1881-2, was then engaged in work for the United States Fish Commission. Here opened one of opportunity's doors, and entering in, I had the good fortune to be taken to Woods Hole in the summer of 1882 as Professor Verrill's assistant. The following summer found me again at Woods Hole. My work for those two years was of a general nature, involving numerous trips to deep water in the study of fauna near and on the continental slope. It was not until the summer of 1884 that I could take up a special line of investigation. Professor Baird, U. S. Commissioner of Fish and Fisheries, was always interested in young men with a turn toward natural history, and he welcomed one who was willing to undertake the not particularly delectable task of studying the entozoa of marine fishes.

SHARKS AND BONES

The cestodes of sharks and skates first engaged my attention. Now the selachians are a group as distinct perhaps from the bony fishes as they are from the amphibia. Certainly their cestode parasites, of which

there are many families containing numerous genera and species, are, in their adult stage, peculiar to selachians. Since the selachians are a very old group their cestode parasites must likewise be very old, and the many startlingly diverse characteristics peculiar to them have developed in some responsive fashion to their surroundings after the worms had acquired the parasitic habit. In general, it may be remarked in passing that selachians which belong to the same genus tend to harbor cestode parasites peculiar to themselves. An illustration of the dependability of the foregoing generalization is afforded by the following incident.

In the summer of 1905 I was invited to work at the Carnegie Marine laboratory at the Dry Tortugas. Before leaving home, in response to a letter from Dr. Mayor, I suggested that if any sharks were taken, the spiral valves might be put in formalin against my coming. When I arrived I found that the spiral valve of a large shark, which had not been identified, had been preserved. Upon examining its contents a considerable number of cestode strobiles were found. Since these were in agreement with conditions which I had found in the leopard shark, and in no other species of shark, and the spiral valve being of the type found in the leopard shark I identified as the host the shark whose latest approved scientific name is *Galeocerdo arcticus*, common names, Spotted Shark; Leopard Shark, etc. The species was not indicated by the spiral valve, since that type is characteristic of many genera of sharks.

Later it became desirable to verify my identification, and, having written to Professor Garman, to whom the jaws of the shark had been sent, was informed in reply that the jaws in question were those of a Leopard Shark.

And, speaking of sharks, it is interesting to note that many people are apparently in the grip of a fixed idea to the effect that all sharks are man-eaters. I remember one day while I was in the act of removing the stomach and spiral valve from a large shark on one of the floats at the Bureau of Fisheries Laboratory, some passing sight-seers stopped to look at this exhibit. A lady in the party asked me if I ever found human bones in the stomachs of sharks. I was obliged to confess that I had not had that privilege. Just then it happened that a part of the stomach contents fell out on the float. The shark had evidently lately swallowed a lot of material thrown over from some ship's galley. Among the debris were some large and unmistakably mammalian vertebrae and ribs. Although I assured the startled questioner that these were pig's bones, I am quite sure that she was unconvinced, and that doubtless

to this day believes that she was witness to the resurrection of human bones from a selachian tomb.

I had it in mind when I began the preparation of this paper to speak somewhat at length of many of the interesting personages who crowd my memories of the long series of years when my helminthological pursuits took me to Woods Hole, where I was favored with the facilities offered by the laboratory of the U. S. Fish Commission, later the U. S. Bureau of Fish and Fisheries.

Such indulgence would expand this paper to the dimensions of a volume, so I shall leave much untold that it would be a delight to tell.

BAIRD

In his double official capacity of Secretary of the Smithsonian Institution, and U. S. Commissioner of Fish and Fisheries, Professor Baird gathered about him many outstanding men. Thus, among occasional visitors, for longer or shorter sojourn came such men as E. D. Cope, S. Weir Mitchell and William Osler. All of them were interested in what was going on in the laboratory, and would sit down at our tables, look through our microscopes, ask stimulating and suggestive questions. Less intimately we either met or listened to conversations which Professor Baird and the older members of the staff held with such well-known men as Professor Shaler, S. P. Langley and Alexander Graham Bell.

Some reminiscences of those days will be found in SCIENCE, XLI:737-753, XLVIII:25-34, and in THE COLLECTING NET, summer of 1927.

“As the memories of those summers which I spent at Woods Hole in the days of Professor Baird are made to pass in review, I am tempted to speak of those who dominated the foreground; of such personalities as A. E. Verrill, who brought to the scientific work of the Commission a profound knowledge of the invertebrate life of our coast, from Southern New England to Laborador, and continued without interruption to the days I am attempting to recall (It is a pleasure to be able to report here that in a letter, dated Jan. 25, 1923, and written in a firm hand, that although 84 years of age, he is still working to midnight, or later, every day in the week); of Professor Sidney I. Smith, himself a prodigy of industry in those days, with his keen intellect and loveable character; of Richard Rathbun, with his habits of close application to the work in hand, and to whom this magnificent building, in which we are now met, is in no small degree due; of John A. Ryder, a philosopher,

whose philosophy rested on the solid ground of nature, into whose secrets he was inquiring—too early taken, to the great loss of science; of Theodore Gill, who awakened a sort of awed wonder in the minds of us younger men by the marvellous range and accuracy of his memory; of G. Brown Goode, whose brilliant mind and honest eye attracted us to him, and upon whom we naturally looked as the one best fitted to continue the work of Professor Baird, when the time should come for him to pass on to other hands the torch which he himself had lighted. Of these and many others I would gladly speak, but I am admonished that my subject is "Baird at Woods Hole". But even as the persons whom I have named and others with them, walk and talk and act on the stage of my memory, there is still the abiding consciousness that there was a moving force, a quiet but persistent directing agency present in it all, and that was the mind of Professor Baird. In a sense, then, we who were there and were endeavoring in our several ways to contribute to the main purpose of all this activity, the laboratories in which we worked, the ships, whose range was in the waters along the coast for many miles, and seaward to blue water, were all but parts of the thought which Professor Baird had projected into the future, and were simply taking places predestined in that thought; much as Alice was one of the things in the Red King's dream, according to the philosophy of her two amiable guides . . . Those of us who returned to Woods Hole in the summer of 1887, were shocked to see that in the months that had intervened since we had last seen the Professor, the Great Destroyer had been busy, and had almost completed his work. Through July and half of August we were saddened by the daily sight of the once vigorous frame, now pitifully wasted, as he was wheeled about in an invalid's chair by the faithful George Butler.

"In spite of his enfeebled condition he was still interested in what was going on. I remember that, following a short conversation with him in July, he advised that Vinal Edwards and I go to Nantucket for certain material. Near the end he had George take him about the grounds which surrounded the Residence building, for a last look, and through the various rooms of the laboratory, where he had a kindly, and not uncheerful word for every one."

(From address at Baird Centennial Celebration. Collecting Net, 1927)

"On the nineteenth of August, 1887, amid surroundings which were in large part the realization of his own thought and activity,

in the residence building of the United States Fish Commission, at Woods Hole, Massachusetts, Professor Baird, man of science and servant of the public, died.

I remember the day and the hour. It was afternoon, and the tide was low. I recall a picture of a red sun hanging over Long Point, and reflected in the waters of Great Harbor, of sodden masses of sea-weed on the dripping piles and on the boulder-strewn shore; and there rises again the thought that kept recurring then, that the sea is very ancient, that it ebbcd and flowed before man appeared on the planet, and will ebb and flow after he and his works have disappeared; and a singular, indefinite impression, as if something had passed, in some fashion, great, mysterious, and ancient, like the sea itself."

(From address at dedication of Baird tablet. Science, XLVIII, 25-34.)

I may add here to this memory picture some lines of Andrew Lang, which I came upon many years after:

ST. ANDREWS BAY

Ah, listen through the music from the shore,
The 'melancholy, long-withdrawing roar';
Beneath the Minster, and the windy caves,
The wide North Ocean, marshalling his waves!
Even so forlorn—in worlds beyond our ken—
May sigh the seas that are not heard of men;
Even so forlorn, prophetic of men's fate,
Sounded the cold sea-wave disconsolate,
When none but God might hear the boding tone,
As God alone may hear the long lament alone,
When all is done, when all the tale is told,
And the gray sea-wave echoes as of old.

The memories of Woods Hole, just recounted, have had to do with the period ending with the summer of 1887. Returning in the summer of 1889 I found an interesting group of workers at the Fish Commission Laboratory, some of whom were already distinguished, and others, just beginning careers of distinction. Among this goodly company I recall the names of W. K. Brooks, E. A. Andrews, H. V. Wilson, F. H. Herrick, C. B. Davenport, M. C. Greenman, R. P. Bigelow, C. F. Hodge, T. H. Morgan and Sho Watase.

Here I may be permitted to include two paragraphs from *Reminiscences of the Woods Hole Laboratory of the Bureau of Fisheries*, 1882-89.

"The Marine Biological Laboratory had been opened the previous summer. Dr. Whitman had already inaugurated the custom of having evening lectures. They were held in the one laboratory building in the room, I think, in which the invertebrate course is now conducted.

In 1889 cross breezes were ruffling the calm of the biological atmosphere. There were some in the laboratory who stoutly denied that the surroundings did or could have any manner of influence on the germ cells. There was no god but heredity and Weismann was his prophet. In those days also the neo-Lamarkians were in the land; sturdy Americans they were, who hardened their hearts at ideas made in Germany. One evening, I remember, we went over to the Marine Biological Laboratory to hear a lecture by Professor E. D. Cope. The lecture was on some mechanical factors in evolution. Professor Cope, the most scintillatingly brilliant American man of science that has yet appeared, told us about the shapes of the carpal bones in a number of extinct artiodactyls which he had been studying. He illustrated his lecture with numerous crayon sketches while he was talking. His conclusion was that these bones owed their shape to the mechanical effects of pressure and stress, and were thus evidence of characters that had become impressed on lines of descent by the surroundings, and hence might be said to prove the inheritance of acquired characters. I recall that one of the young men, upon our return to the Fish Commission Laboratory, characterized Professor Cope's lecture as puerile, which I did not think then, nor do I think now, is exactly a word that is needed to describe anything which Professor Cope said or did in 1889."

(*Science* XLI, 737-753.)

I remember that Dr. Whitman, at the conclusion of Professor Cope's lecture, spoke at considerable length, with a strong Weismannian bias. So far as I can recall my own reactions at the time, I felt that Professor Cope's contentions had not been fairly met. Also, in our discussions in the laboratory, my endeavors to have Professor Cope's artiodactyl carpals, and such objects in nature as the dorsal fin of the porpoise explained, met with no success. It should be added that all efforts to draw Dr. Brooks into the Weismannian controversy were barren of results.

YELLOWSTONE LAKE

In the summer of 1890 I was directed by Richard Rathbun, in charge of scientific work of the U. S. Fish Commission, to join Professor S. F. Forbes, of the University of Illinois, who was commissioned to make a survey of the lakes and streams of Yellowstone National Park, particularly of the plateau region above the fall line. This is an extensive area which lies on both sides of the continental divide. There were no fish in the lakes and streams of this area, with the exception of Yellowstone Lake and its tributary streams. The Superintendent of the park, Captain Boutelle, wished to have the fishless waters stocked with trout, if it should be found that fish would find a congenial habitat there. He also asked that a study be made of the trout of Yellowstone Lake, a noticeable number of which harbored worm parasites in the flesh. This latter task was allotted to me.

Some time ago I gave, in this seminar, an account of the Yellowstone Lake region as I saw it in a six weeks sojourn in 1890. At this time I may be permitted to speak briefly on a few topics which have a more or less helminthological trend.

The first lakes explored by our party were Shoshone and Lewis Lakes. These lie on the western side of the Great Divide, and are separated from the Snake River by falls which are too high for fish to surmount. Although abundantly stocked with fish food, in the shape of small crustaceans and entomostracans, no fish were included in their fauna. The next lake visited, Heart Lake, is below the fall line, and in it chubs, suckers and trout were abundant. An interesting case of local distribution of fish was observed in Witch Creek, which empties into Heart Lake. At a point where a warm, sluggish stream, with a temperature of 95°, Fahrenheit, enters at right angles a rapid stream with a temperature of 48°, F., a school of young suckers was seen in the warm stream, and an occasional trout in the cold stream. The trout showed no disposition to enter the warm water, and the suckers were almost as averse to entering the cold water as they would be to leave the water for the dry land. Even when driven by the net towards the cold water they would dart around the edges of the net rather than enter the cold stream. The trout, presumably, as did those from the lake, considerable numbers of which were examined, carried few, if any parasites, while the suckers in the warm stream were heavily infested with the immature stage of a cestode whose adult stage is found in certain fish-eating birds. Some notion of the degree of infestation may be gained from the following calculation: The cestodes from the body cavity of one of these suck-

ers were weighed, also the weight of the fish after removal of the cestodes was obtained. Then, by the simple rule of three, it was found that a man weighing 180 lbs., if infested to a similar degree, would be carrying around with him about 50 lbs. of tape worm.

It may be worth mentioning in passing that this cestode, *Ligula intestinalis*, figures interestingly in helminth literature. Thus, Leuckart, in 1863, states that in Italy the cestode *Ligula*, is an article of diet, where it bears the name *macaroni piatti*. Donnadieu, in 1877, says that *Ligula* is eaten by many people in Lyons, where it is more frankly called *ver blanc*. Monticelli, however, in 1894, in a paper entitled *Si mangiano le Ligule in Italia?*, affirms that Leuckart is in error in stating that in Italy *Ligula* is eaten as living macaroni. When I mentioned this reputed use of the cestode *Ligula* as an article of diet to a colleague on one occasion, he remarked, in effect, that he had often heard of a Diet of Worms, but had never understood before exactly what it was.

The early explorers of the region found but one species of fish in Yellowstone Lake. Since there are two falls in Yellowstone River a few miles below the outlet, the one, some 140, and the other over 300 feet high, it is quite impossible that the lake could have been stocked from the east. The entrance of the trout (*Salmo lewesi*) has evidently been by way of Two-Ocean Pass, in which there is a marshy meadow where streams from the mountain on either side of the pass divide, a portion of the water going by way of the Heart, Snake and Columbia Rivers to the Pacific, another journeying by way of the Yellowstone, Missouri and Mississippi Rivers to the Gulf of Mexico. Trout, which are at home in cold streams, might at times easily make their way from the western to the eastern side of Two-Ocean Pass, and thence to Yellowstone Lake. Chubs and suckers, which appear to avoid the cold streams, that, even in summer, are fed by the snows which linger on the northern and eastern mountain slopes, would not be at all likely to ascend as far as the pass, and, since they have not been found in the lake, it may be concluded that they have never made that journey.

As to the object of my visit to Yellowstone Lake it may be said that conditions were found there in the vicinity of such hot spring basins as that on the "Thumb", on the west shore, favorable for the development of the early stages of the cestode in question. The final host was indicated to be one or more of the species of fish-eating birds which frequent the lake. What was evidently the adult stage, *Dibothrium cordatum* Leidy, was found in the White Pelican, large numbers of

which were nesting on Molly Island, near the upper (southern) end of the lake.

Travelling by pack train was a new experience for me. Professor Forbes, who was a veteran of the Civil War, who could, and did talk most interestingly of his army life, remarked to me one day that his camp experiences in the army were not so strenuous as the life we were then leading. Our guide, the proprietor of the pack train of 4 men, 14 horses, and 1 dog, Leo, was T. E. Hofer, familiarly known as "Billy". Although hailing from Connecticut, Hofer had become entirely adjusted to his Rocky Mountain environment. At the beginning of our trip, before we had cut loose from civilization, I remarked on the apparent carelessness with which such personal property as saddles and bridles were left lying about while their owners were attending to affairs which took them miles away, and apparently for days at a time. Hofer replied in a quite matter-of-fact way, that a few years before they did have to hang a man for stealing an outfit. Since then there hadn't been any stealing in the region. I was interested in noting the anthropological groupings which were recognized by our camp companions. As I followed their camp-fire gossip I learned that the human population of the region were divided into Indians, Chinese, Soldiers, Mormons and Whitemen.

Of Professor Forbes I can say that I found him to be one of the most delightfully charming of good companions. Many incidents of the six weeks of our close intimacy come crowding in my memory. I remember one day on the trail between two camping stations, our horses' hooves making only muffled sounds on the carpet of pine needles, and the all-pervading stillness of the forest unbroken by cry of bird or chirp of insect, he asked me a question. For the greater part of the way we had to follow the trail in single file, but here we had come upon a space where we could ride two abreast. As I drew alongside he startled me by asking, if, when I was a boy, I had any visual picture of God. Now, theological concepts had had little place among the instructions that I had received in my boyhood, and, as far back as I could go I found that my idea of God was that of an ever present must and must not, which could no more be visualized than the impalpable and viewless ether of space. It seems to me that Professor Forbes's boyhood idea of God was a somewhat awesome one. It was that of a red face, something like the sun when seen through a mist. This face wore a serious, and rather stern expression, and was always looking at him from its place in the sky, which, I should judge from Professor Forbes' gesture, was about 30 degrees from

the horizon. With those eyes always watching him he doubtless got through boyhood and the slippery years of adolescence, to borrow a word from Roger Ascham, more creditably than many of us who were denied such heavenly vision. He added that he had asked his little boy the same question, and had received the unhesitating answer that God had a brown moustache and wore buttoned gaiters, which, in a way, described his father.

BACK TO WOODS HOLE

After an interval of eight years the summer of 1898 found me again at Woods Hole, where this and the two following summers were spent.

The Fish Commission in these years was under the directorship of Dr. H. C. Bumpus, and practically all of the working space was occupied. Dr. Bumpus brought over from the library of Brown University a large collection of reference literature for our use. From Brown, also, came Drs. Gorham and Tower, of pleasant memory, and George H. Sherwood, whom Dr. Bumpus called Sammy.

In these, and years which followed, my admiration was aroused by the ease with which Dr. Parker worked out the functions of the otolith, and the lateral line in fishes, and ascertained to what degree fishes react to sound waves set in motion in the air, his laboratory outfit for the solution of all these problems consisting of a few hat-pins, a short length of 2 by 4 scantling bolted to a small aquarium, a hammer, a small fish-net, and the service of the U. S. Revenue Cutter, "Acushnet's" swivel-gun.

Sometime between 1889 and 1898 the old spelling of the village name had been resumed by the Post Office and the Fish Commission. The spelling *Holl* had never been adopted by the U. S. Coast Survey. The history of this change of spelling is given in a pamphlet by Joseph Story Fay, entitled *The Track of the Norseman*, first printed in 1873, reprinted Sep. 1, 1882:

"In accordance with the foregoing ideas, in the year 1875 the male voters and residents of the village, with one exception, signed a petition to the Post Office Department to change the name of Wood's Hole to Wood's Holl, and it was granted and went into effect in October of that year. It was not a matter of mere fancy or an 'aesthetic craze', but as the correction of a long-standing error."

Mr. Fay contended that the name, known locally as Hole, which in a distance of sixty miles of the regional coast occurs no less than five times, was originally given by the Norsemen. Further, that the English, having no such word in their language as *Holl* (meaning hill, and pronounced like roll, toll, poll, etc.), naturally in their maps and records wrote and printed it *Hole*, according to its phonetic sound.

The Marine Biological Laboratory, which had been in operation but one year in 1889, had grown until it was taking its place among the best marine biological laboratories of the world.

BEAUFORT AND BALLADS

Altogether the temptation is great for me to linger here and tell of the personalities and outstanding events of those years, but other sites than Woods Hole have a place in these reminiscences, also, a reasonable limit for this paper must be observed.

The summers of 1901 and 1902 were spent at the U. S. Fish Commission Laboratory, Beaufort, N. C. In 1901 the laboratory was in the second story of the old Market House. The next year, the Government having purchased a small island in the harbor, we moved to the new laboratory in the building which still stands there.

I may not dwell upon the rich and comparatively new helminth fauna which I found on the North Carolina coast. The mulberry trees on the streets first attracted my attention with their branches growing to leeward, and even the trunks of many of them leaning away from the prevailing south-west winds. Also, I was interested in certain linguistic peculiarities of the people. If one wanted a boy to collect some toadfish, he had to ask for "toads", while, should he want toads, he must ask for "toad-frogs". Many words were clipped to such a degree that, at first, I had difficulty in understanding their meaning. Thus, I was puzzled when I heard a word which sounded like "seewa", which turned out to be the word which I knew as sea-weed. Then the prevailing pronunciation of words beginning with the letter v, was that of Tony Weller. So, it was a "wessel", and not a vessel which one saw on the seaward side of Shackleford Bank. Even training elsewhere did not entirely overcome this comfortable habit. I heard the Rector of the Episcopal Church, a native of Beaufort, in a very good sermon, speak of a "generation of wipers." Also, if one used the word rock he would be understood to be speaking of an oyster reef. If he wished to have a ten pound rock or stone he should ask for ballast.

Here, in 1901, I found a congenial company, of whom I recall: W. K. Brooks, H. V. Wilson, R. E. Coker, R. P. Cowles, D. H. Tennent, Caswell Grave, O. C. Glaser, J. Y. Graham, George Lefevre, C. W. Stone and W. C. Curtis. Resisting the urge to recount some of the many incidents which recur to me as I recall those days, and to speak of my laboratory associates, many of whom figured delightfully as intimate companions in after years, I shall content myself at this time with speaking of Dr. W. K. Brooks, whose acquaintance I had made 12 years before at Woods Hole, and of whom I had written in my *Reminiscences*, referring to the year 1898:

There was here, however, that summer, a man of quiet and unobtrusive manner, who, as it seems to me, had elements of real greatness in his nature in higher degree than any one whom it has been my fortune to know. That was Professor W. K. Brooks.

It was gratifying to learn that Dr. Brooks was well acquainted with many of my own literary likings. I remember one morning after breakfast, while we were lingering on the front porch, that Caswell Grave recounted some bit of local happening, upon which Dr. Brooks's comment was: "That's like the Bishop of Runtifoo." Caswell looked blankly puzzled. Then Dr. Brooks asked us if we were not acquainted with the "*Bab Ballads*". It turned out that I was the only one present who shared with Dr. Brooks a knowledge of Gilbert's verses. Whereupon he remarked to the others: "Your education has been neglected", and then recited the whole of "*The Rhyme of the Nancy Bell*", and "*Captain Reece of the Mantlepiece*". He keenly enjoyed repeating these ballads, and could appreciate the good-natured satire of the ballad "*Etiquette*", with its two exponents:

"Peter Gray, who tasted tea for Baker, Seroop and Co.,
And Somers, who from eastern shores, imported indigo."

Their casting ashore on a desert island, where:

"They hunted for their food as Alexander Selkirk used,
But couldn't talk together. They had not been introduced."

One peculiarity of Dr. Brook's manner, which might have been misjudged, before a better acquaintance made one familiar with his reaction to questions, will be remembered by those who knew him well. If one chanced to ask him a question, there might not only be no immediate reply to the question, there might not be the slightest change in his

facial expression to indicate that he had heard the question. After one came to know him well, one felt really complimented by this apparent lack of attention, for, if the question was really worth while the delay in making an answer simply meant that he was turning the problem over in his mind before making an answer. If the question was answered without time being taken for reflection the chances were the question was not of much importance. Many times during those pleasant weeks of the summer of 1901, have I seen Dr. Brooks rise and leave his table at the north end of the big room, after a question had been asked him by Glaser or Tennant or other worker, possibly a half hour, or hour before. He would walk to the other end of the laboratory, return to his table, sit down, and then answer the question, or discuss the subject with which the question had to do. I think that I am not mistaken when I say that he was never didactic. His was the Socratic method. Even when he indulged in longer discussions it was as if he were communing with his own mind in an endeavor to arrive at the truth.

PHILOSOPHIZING

One experience of my own may be worth telling, by way of illustration. I have told the incident in conversation many times, but never before attempted to make a written record of it. It so happened that before I left home for Beaufort I had been carrying on a running discussion with Dr. Weyer on the subject of idealism. One exhibit on my side of the discussion had been a piece of silicified wood which I had picked up on Specimen Ridge at the north end of Yellowstone National Park, in the summer of 1890. The trunk of the tree from which it came is still standing, and I had taken a kodak picture of it, with Professor Forbes standing beside it and examining a piece of the tree with a pocket lens. The texture of the wood is perfectly preserved, so exact in every detail, that one acquainted with woody structure could identify it with as much certainty as he could a piece of wood taken from a present day lumber-yard. I wished to have this piece of silicified wood, with all that it appeared to stand for, interpreted in the terms of idealism. According to my naive philosophy, based as it was on my conception of time and reality, there had been a tree living and growing back there in Tertiary times, that it had been overwhelmed, but not overthrown, by volcanic debris, its molecules of cellulose replaced by those of silica, but so slowly that cellular structure and associations had been preserved.

A short time after reaching Beaufort, I received a letter from Dr. Weyer in which he devoted a page or so to an interpretation of the

situation created by the silicified wood. We got our mail at the laboratory in the evening, and on this particular evening, after I had finished with my mail, Dr. Brooks, whose table was next mine, had also finished looking over his mail. Now, I had already learned that he was much interested in philosophy. Indeed, I had heard him say in conversation a short time before that he thought that the philosophy of Berkely came nearer to satisfying the demands of modern science than did any of the systems that had been proposed. (This is, of course, quoted from memory, and is not word perfect, but I think that the purport of his statement is correctly rendered.) I thereupon gave him a brief outline of my silicified wood adventure into philosophy, and read to him what my correspondent had to say about it. Dr. Brooks's only comment was: "Well, your friend is getting into pretty deep water." The subject was not mentioned again until a week, or, perhaps, ten days or more had passed. Then, one evening, without any prompting on my part, Dr. Brooks took up the subject where he had left it, possibly as much as a fortnight before. We were sitting on the upper gallery of the house where we were rooming. It must have been about eleven o'clock, for I remember we had been silent for a few minutes, and I was thinking that it was time to go to bed. But the night was warm, and the thought of the somewhat stuffy bed-room was not inviting, while my chair was comfortable, and the breeze which was blowing gently but steadily from the ocean, just across the narrow sound and the strip of sand dunes beyond, was delightfully soothing. Then it was that Dr. Brooks broke the silence with these words: "Now, Linton, about that silicified wood."

Perceiving that I had raised a question which Dr. Brooks had been turning over in his mind for days, and possibly feeling a bit gratified that my inquiry had appeared to be worth while, I thought no longer of bed. Idealism, according to my untutored view of the Berkleyan philosophy, had not appeared to afford an adequate interpretation of the testimony which this bit of silica afforded that some millions of years ago there was a living tree in the place on this planet designated by the latitude and longitude of Specimen Ridge.

This is not the place to attempt to reproduce Dr. Brooks's discussion, even if I felt that I could do so, if only in small part. It is to be regretted that I made no record of his words while they were fresh in my mind.

As I recall the incident, I am reminded of a remark made by Oliver Wendell Holmes in his "*Over the Tea-cups*", to the effect that he often found himself carrying on one or more different lines of thought while

listening to, and paying close attention to one who is speaking, or with whom he is carrying on a conversation. While Dr. Brooks was talking although I was alertly attentive to what he was saying, I found myself thinking that I must be experiencing one of those rare opportunities of listening to a creative contribution to human thought, such as fell to the lot of those fortunate young Greeks who had a share in the thoughts of Plato. Whether I followed the discussion with entire understanding or not I shall not presume to say, but before it was ended I had to acknowledge that a change had taken place in my conception of the philosophy of Bishop Berkeley, and I understood the futility of Samuel Johnson's disproof of the good Bishop's views by kicking a stone which lay in his path.

An impression was made on my mind then, often recurrent in the intervening years, from which I am led to believe that if the words, which fell from the lips of Dr. Brooks on that quiet August evening had been taken down exactly as he uttered them, they would to-day be recognized as a real contribution to the philosophic interpretation of natural phenomena.

The following summer, 1902, again found me at Beaufort. I remember that Dr. E. B. Wilson had with him an unusually likeable young man by the name of Sutton, who had been started on his promising career by Dr. McClung at the University of Kansas, and who had already made a startlingly notable contribution to cytological knowledge. It was a matter of deep disappointment to Dr. Wilson, when later Sutton turned from biology to surgery, in which profession he achieved eminence before his too early death. Among the new comers this year I also recall E. W. Gudger and Ivey F. Lewis, the latter just graduated from the Univ. of N. C.

At Beaufort I met an interesting amateur fisherman who deserves passing mention. I remember being out with him in his sharpy one day fishing for bluefish, when, a rain coming up, he decided that, since there was no shelter, something of a comforting nature was called for. He had the necessary medicine with him. It was in a flat bottle, was red in color, and, when the cap was removed, emitted an odor which recalled to my mind the Monongahela River of my boyhood days. He politely offered me the bottle. As I was feeling quite well, and not at all in the need of medicine, I declined with proper expressions of grateful appreciation of his friendly gesture. Thereupon, after reciting a ritualistic formula, which ended with these words: "Here's lookin at you," the self-prescribed and self-administered dose was swallowed.

In 1902 he was stopping over at Moorhead City, but was a frequent visitor at the laboratory. He was trying to see how large a shark he could catch with a rod and line, of the sort used in Vineyard Sound in fishing for striped bass. His method after hooking the shark and bringing it along side was to shoot it through the head and then take it aboard. One day he brought a black finned shark to the laboratory which he had taken in the above described way. As he was in a hurry to be off, he did not wait for the measurements to be made, which he requested me to send to him, on official Bureau of Fisheries paper. I did as he directed. The following morning he came in, and as he had left Morehead before the morning mail had arrived, he asked me about the measurements, saying: "How long did you make that shark?" I told him that the length was 9 feet. He ruminated over my answer for a bit, and then in a confidential sort of way remarked: "Look here, Dr., you know I will run up against some of the biggest liars in the country. Couldn't you make that shark 12 feet?" I suggested that we look at the book which was kept in the laboratory and see what entry Caswell Grave had made. When I read "length 9 feet, tail 3 feet", the fisherman was delighted. He said: "That's fine, 9 and 3 is 12."

Then there was Captain Hawkins (he pronounced it Awkins) of the U. S. F. C. steam launch "Petrel", Sturdy Fundamentalist who saw no hope for teeming humanity outside his own Section of the Baptist Church. He still brightens a corner of my memory.

BERMUDA

In the summer of 1903 I spent 6 weeks at the Bermuda Laboratory which was then at the Frascati Hotel, on Harrington Sound, and under the direction of Drs. Mark and Bristol. My old friends Coe and Lefevre were there to greet me. Among the youngsters were two who have since been heard from: H. B. Bigelow, now Superintendent of the Oceanographic Institute at Woods Hole, and Thomas Barbour, now of the Museum of Comparative Zoology at Harvard. Here I had the pleasure of renewing a friendship begun at Woods Hole in the summer of 1898, in the person of Charles R. Knight. This good companionship has been renewed in most of the succeeding summers. Knight's mural paintings and paleontological restorations are familiar to those who have visited the American Museum of Natural History in New York, and the Field Museum in Chicago. An incident which I have related elsewhere may be repeated here, although it belongs to happenings of the year 1898:

"Dr. Whitman's Japanese artist Hyashi was in my room and he and Knight were talking about European animal painters. Hyashi was about to make a six weeks visit to Paris, and was getting what information he could about Paris animal painters. A part of that conversation still remains in my memory; perhaps it is because I told it to Dr. Bumpus, shortly after I heard it, and he had me tell it, I don't know how many times during the summer. The name of the artist I am not sure about, but as I recall it the name was Dupin. Hyashi asked: "Do you know painter name Dupin?" To which Knight made answer: "No, I don't think so. How do you spell it?" Hyashi spelled it. Whereupon Knight exclaimed: "Oh, Dupin, you bet. He's a corker!" Hyashi smiled politely, waited a bit for Knight to answer his question, and then asked: "Is he a gooda painter?" He was not interested in corkers, but he was interested in animal painters."

(Collecting Net, 1927)

At Bermuda I had my first opportunity to become acquainted with the helminth fauna of tropical fishes, which I found particularly rich in trematode forms. The latter part of the summer of 1903 I spent at Woods Hole. I may add here that every summer since then, either in whole or in part, has found me at the laboratory of the U. S. Bureau of Fisheries at Woods Hole.

The laboratory in 1903, and for many years after was directed by Dr. F. B. Sumner. He, who was a center of creative activity, and Dr. Raymond C. Osburn, who furnished large measures of geniality, along with constructive work on the Biological Survey of the region, which was then getting under way, contributed greatly to my vermian pursuits.

In the summer of 1905 I had a pleasant interlude in the way of a visit to a private trout lake on the summer estate of Mr. S. D. Coykendall of Kingston, N. Y. Mr. C. was concerned about what appeared to be some kind of an epidemic that had made its appearance on the trout in his lake, and had consulted Dr. Tarleton H. Bean, of the N. Y. Forest and Game Commission, who had advised him to have me come and look his trout over. I joined Dr. Bean at Kingston, and Mr. C. took us out into the Catskills in his private car, on the railroad, which appeared also to belong to him. We were royally entertained at Mr. C's elegant summer residence, and that same evening caught some gamy trout and made a preliminary examination. The following day, which happened to be the 4th of July, I worked in an improvised laboratory in the up-to-date boat house, with which, together with a well equipped hatchery, the

lake was equipped. The trouble having been diagnosed, and the necessary advice given, Dr. Bean and I returned to Kingston the following day, Mr. Coykendall having returned the day before. The most surprising feature of this adventure came at its close. Upon our arrival we were met by our engaging host of the Catskills, and after an excellent lunch together, as we were about to bid him good-bye, he said: "Now, how much do I owe you gentlemen?" Zoologists, as many here present, I am sure, will agree with me, are quite unaccustomed to face such conditions as that which now confronted us. As for myself, I felt that I had had such an enjoyable visit to the Catskill region, that, if anything, I was in debt to our genial host. However, he next said: "If I give you —— dollars a piece will you be satisfied?" We murmured that we would be quite satisfied. The bills which he then took from his pocket-book and handed to us were of a denomination that had never before, and only on one occasion since, have been found in my pocket-book. Six years after our first visit to Mr. Coykendall's lake, Dr. Bean and I were asked to return. This time the problem was a different one. Our experiences of the first visit were duplicated, and the adventure proceeded to a similar happy ending.

THE DRY TORTUGAS

The first six weeks of the summers of 1906, 1907 and 1908 were spent at the Carnegie Marine Biological Laboratory at the Dry Tortugas. The Laboratory was then under the directorship of Dr. Alfred G. Mayor, whom I found to be an admirable addition to the long list of likeable biologists whose lives a kind fate has, for longer or shorter times, linked with mine. Here I found the trematode fauna a very rich one, both in genera and species, and practically all new. The nurse shark and spotted sting ray also made a notable contribution to new genera and species of cestodes.

As usual I found a congenial company of workers in the laboratory, most of whom I had already met. Dr. Reighard, I remember was getting under-water photographs of marine life, and staining small fish and noting the reactions of their enemies. Here we relapsed into a simple life, and luxuriated in daily swims in the Gulf Stream, a perceptible north-flowing branch of which laves the eastern shore of Loggerhead Key, within a hundred yards of the laboratory. I remember particularly one day this stream was carrying many siphonophores looking something like bunches of small reddish currants. I think that all of us who were in swimming that day had more or less frequent encounters with these fervent hydrozoans, which raised distinct, and painful welts wherever

they touched our skin. In most cases the pain was soon over, and we noticed no after effects, although Dr. Stockard, as I recall, complained of some headache and feverishness as long afterwards as the following day, which he attributed to these coelenterate encounters.

Speaking of a return to the simple life reminds me of Dr. John W. Watson, who was staying at this time on Bird Key, where he was studying the habits of the two species of tern which nest on that island in vast numbers. His return to nature was complete, although on the occasion of our visit he donned a bath-towel in our honor. He had at that time tanned to a beautiful golden-brown, and was, I think, the finest figure of a man that I have ever seen. Dr. Mayor, an admirable raconteur, used to recite a thrilling saga of the arrival of some visitors, or rather visitresses, at Bird Key while Dr. Watson was living there among the sooty terns, but that story does not belong to these reminiscences.

RATS AND CRABS

In 1906 the Alexandrine rat had made its appearance in noticeable numbers, having been introduced, it was thought, by some of the vessels which had brought material for the laboratory. I remember that in this year, which was the second year that the laboratory had been in operation, sand-crabs were very abundant on the beach. We could hear them scuttling into the bushes as we were coming back in the late evening from the west end of the island. It was our custom to walk thither after supper, where we would lie down on the warm sand, watch the sun go down and the wonderful display of stars come out, and trace the constellations in the remarkably clear sky. More than once Dr. Mayor was pretty well satisfied that he could make out a portion of the Southern Cross. He had become acquainted with this constellation on his trip to the south seas with Alexander Agassiz in the Albatross. Of this trip he loved to talk, and we were always delighted listeners. Of the clearness of the Tortugas sky I may say that I succeeded one evening in recognizing a shadow cast by the planet Venus. I know that that is a tall story, but the conditions were exceptionally favorable, so I let the story stand as written.

Late in the season Dr. Mayor began a campaign against the rats. The following year this campaign was continued vigorously, a large

supply of traps having been secured and put to use. In 1907 the rats had increased in numbers to such a degree that the sand-crabs, of which the rats were fond, had almost disappeared. The rats had also found the young cocoa-nuts good to eat, and had done much damage to them. It was in the Tortugas that I had my first experience with the milk of the cocoa-nut, and with the meat of the young nuts before the shell has hardened. I found each to be good and pleasant to the taste.

By the summer of 1908 Dr. Mayor had won in his war with the rats. He thought then that they had been exterminated. At any rate the sand-crabs were again scampering over the beach, and the cocoa-nuts were unmolested.

NEW YORK FISH

In closing these helminthological adventures I shall quote from an already published account:

“On June 17, 1915 I received a telegram from Dr. Hugh M. Smith, U. S. Commissioner of Fish and Fisheries, asking me to be in Washington on the 19th for a consultation concerning parasites in butterfish, in order that I might appear on the following Monday before representatives of the Department of Health of New York City to present arguments against the embargo which had been placed upon the sale of that food fish.

I complied with Dr. Smith's request, and at 9:30 A. M. on the 21st I met, by appointment representatives of the Department of Health at their office, Center and Walker Streets. Of the officials which I met on that occasion I remember best Dr. S. S. Goldwater, Chairman of Commission of the Department of Health, and Dr. Hermann Biggs, Chief of Division of Food Inspection. The Department had condemned some consignments of butterfish on account of worms in the flesh. I soon found that it was not cestode cysts in the flesh that were objected to, but nematodes, which Dr. Biggs assured me were wriggling in enormous numbers in the flesh. I told them that I had been examining butterfish in considerable numbers every year for the last ten years, and that while cestode cysts were often present, and sometimes in considerable numbers, that nematodes did

not occur in the flesh of butterfish which I had examined on the southern coast of New England. I also stated that immature nematodes were common on the viscera of butterfish, as well as of other food fishes, but that they did not, in my experience penetrate the flesh. This information, by the way could have been secured from the fish dealers of Fulton Market. My testimony was ineffective, Dr. Goldwater, with a frankness of expression from which there was a singular absence of suavity, remarking that I did not know anything about nematode parasites in butterfish, and Dr. Biggs vehemently asserting that practically every butterfish brought to the market was wriggling with worms. Seeing that we were not likely to get any where, the suggestion was made that some butterfish be sent to us from the market. This was done, and in a short time six butterfish were delivered at the office. Dr. Biggs bravely attacked one of the fish with a butcher knife. He valiantly slashed through the belly of the fish, dragging the viscera, which happened to be carrying considerable numbers of immature nematodes, mainly clustered on the pyloric caeca, across the muscle tissue. The worthy doctor hopped about in excitement, fairly shouting: "There! See them! I told you the flesh was wriggling with them!" I called his attention to the fact that the worms had been dragged by the knife from the abdominal cavity onto the muscle tissue, and asked him to open the others from the back. This, rather reluctantly, as it seemed to me, he agreed to do. None of the fish thus opened had any nematodes either in or on the flesh.

"I left the office of the Commissioner of the Department of Health in a fairly good humor, although there passed a few minutes of the interview when I yearned to pitch the Commissioner of Public Health out of the window, throwing in the Chief of Division of Food Inspection for good measure. . . . It appears that the trouble was started by some, possibly well-meaning blunderer, who induced housekeepers to buy their fish direct from people who supplied the fish at a rate below that asked in the market. These fish were not dressed by the dealer, and when housekeepers, in preparing these fish for the table, saw veritable worms in them, not being familiar with the ways of nature, and associating worms of any kind with

what is usually meant by "wormy meat", naturally raised clamorous complaint . . . Dr. H. F. Moore, at that time Deputy U. S. Fish Commissioner, estimated that, during the short time that the embargo against butterfish was in effect at New York, butterfish to the value of at least \$30,000 were thrown overboard.

"In July of the following year there was another flurry in the Department of Health arising from complaint of wormy butterfish. I was again sent to interview the authorities. This interview took place on July 5, 1916. I found a very different set of men in charge from those which I had encountered the previous year. My interview was with Mr. Lucius Polk Brown, Head of the Department of Food and Drugs. He was of such a different type from that which I had associated with New York officials, that, after the very satisfactory interview was concluded, I asked him from what part of the country he came. He said that he was a Tennessean. The memory of this genial and sensible soul offsets in some degree the bad reputation which rests upon his native State in matters which relate to an open mind."

(Collecting Net, 1927)

My task in the preparation of this paper has been to select and record incidents that seemed to be, in some degree at least, consonant with the general theme. Of course there has been an undertone of a plugging-away sort of work that may be mentioned but not described. Then there is that long line of about the finest specimens of human fellowship, that could be expected to fall within the compass of a single life, that I have encountered on the way, only a few of whom have been mentioned by name. But I shall not extend these excerpts from memory's log further than to note the pleasant haven into which I was blown by the fair winds of a beneficent fate, where I find myself flanked on either side by the workrooms of Drs. McClung and Moore, and in a building, itself in large measure a witness to the energy of the late Dr. Montgomery, all of them friendships which had their beginning a generation ago, is providing a grateful anchorage for my homing craft. Or, to change the figure, this present habitat may be looked upon as a vital link in the chain of events following the assumption of the career of a helminthologist.

For the humble creatures to which it has been my lot to pay some attention, I may say, as every one can say who has studied any natural group of living things, that they can be accounted for only as units in the present phase of that procession of living things which stretches without break from its undecipherable beginning in the past to its unpredictable ending in the future. The problems which they present, and the questions which they occasion are, many of them, but portions of the age old riddle of the universe.



MADELYN S. TREBILCOCK

NATIONAL CONVENTION

St. Louis, December 27-30, 1935

By DR. A. I. ORTENBURGER, *National Secretary*

WHILE it may seem rather early or even premature to announce our next convention at this time, the National Council feels that the sooner members of Phi Sigma know about it the more promptly can they and their chapters begin to make necessary plans to insure its being an outstanding success.

Because of financial reasons only, no convention was held last year, as was originally scheduled. It now seems certain that we will be able to meet with the American Association for the Advancement of Science at Christmas time this year. In accordance with the Constitution, Article II, Section 4a, "Phi Sigma holds its conventions every two years in conjunction with the annual meetings of the American Association for the Advancement of Science". This is a very happy circumstance, as in this way young scientists are given the privilege of hearing not only their own program, but those of the leading biologists of the entire country. It has always been the definite opinion of the Council, and certainly of the delegates elected by the chapters, that these meetings were very profitable to all concerned.

While conventions are necessary occasionally to transact business, this is actually not their primary value. The most important single benefit to the society as a National organization, to the individual chapters, and to the student representatives as well, lies in our scientific sessions where members read papers dealing with their own research and researches of other members of their chapter.

I would, therefore, stress first,—the scientific sessions which occur on the second day of the convention or on the second and third day if sufficient papers are presented. The council reserves the right to reject any paper not presenting research in which the author has at least participated. On the other hand, it is not expected that many papers given by Phi Sigma's student members as junior research workers, be necessarily impressively profound. They should give, however, the results of research carried on by active members.

Later, at the beginning of the school year next fall, I will ask for titles for such papers, with abstracts, so that our program may be printed.

Make plans *now* so that your chapter will be represented not only by your official elected delegate, but by *several* papers as well.

Each chapter is entitled to one delegate and it is not too early for you to begin to think about one of your members who you could be proud to have represent your chapter. The railroad fare of your delegate will be paid in advance by the National Treasurer. Needless to say, the total amount required to pay the railroad fare of a delegate of each chapter to the convention amounts to a very considerable sum, but once again the National Council is firmly convinced that this is a very wise expenditure of National funds. To the best of my knowledge, this use of funds is unique with Phi Sigma.

The result of this payment of railroad fare is that the delegate (or his chapter), need pay only very small additional expenses, which may very well be limited to actual hotel bill and meals.

May I remind the chapter secretary, who is in all probability already elected for the next school year, that each chapter is required to present a report at the convention summarizing chapter activities since the last convention. As a part of this report the chapter's financial statement should be included. All chapter officers should cooperate in writing this report.

While the National Council will, of course, present several items of business for action by the convention, we wish to emphasize the point that each chapter has the *right* and *privilege* of sending to this office a list of all matters which it wishes considered or acted upon at the business meetings of the convention. It should be obvious that this is the only way the National Officers have of knowing your wishes and it is sincerely hoped that if your chapter has any questions to bring up, any opinions to express, any criticisms to offer, or any desires which may effect the National Organization, that these be sent in for consideration. Phi Sigma is a National Organization, and as such, must have cooperation and coordination of the chapters to function properly.

Remember what Phi Sigma stands for, "The encouragement of the spirit of research among young biologists." All of us believe this to be very well worthwhile, but the success we have depends upon the interest and enthusiasm of the individual chapters and the individual members.

Two fellow church members met on the street one Monday morning. Said Mr. Jones, "I didn't see you in church yesterday, Mr. Smith."

"I know you didn't," was Mr. Smith's reply. "I was taking up the collection."

EDITORIALS

Convention Hall

IN this issue Chancellor Warren issues the call for the Seventh National convention of Phi Sigma. The news should be hailed with joy by every Chapter. It is not too soon to follow the advice of our National Secretary and begin to look about for the ideal delegate who shall best represent the aspirations, the grasp on affairs, the constructive ability and the practical work of your chapter.

It is a curious fact, pointed out by Dr. Pearse in the Fall-Winter issue, that each convention has its share of pin-wearing glory-gatherers who nominate themselves for every picnic, convention and joy-ride. If these have only the "gift of gab," there always seem to be too many shy individuals, chapter brethren and sisters, who are only too willing to send them, or who are afraid to speak up and express their willingness to represent the chapter.

Now, nine times out of ten, it is the shy team members who get things done. The loud-speakers do the heavy encouraging from the side lines. By this time, all members of Phi Sigma should know that our conventions are not joy-rides, nor are they scientific picnics. They are deadly earnest business sessions offering little if any chance for entertainment, sight-seeing, or skylarking. So they have always been in the past—so may the chapters in their wisdom keep them in the future.

We Welcome

INTO the circle of Phi Sigma Chapters the biological organizations at the University of New Mexico, and at Rhode Island State College. As this issue goes to press the dates of installation had not been announced. We know they will be welcomed heartily by all the Chapters, and we bespeak for them and their zealous Faculty Members long years of productive and profitable activity in our fraternity.

Our Science Program

IN the eyes of the officers of the American Association for the Advancement of Science, Phi Sigma is the organization which frequently holds junior biological research sessions at the annual meetings of the Association. This is a distinction worth achieving. In one stroke it lifts Phi Sigma out of the ordinary run of all the rest of today's social, professional and honorary fraternities—which in itself is no mean distinction.

Phi Sigma need not worry about the prizes it does not offer, the scholarships it does not bestow, the medals it does not confer. Phi Sigma's existence as a working guild of biologists is justified in that it periodically summons from all parts of the country the research workers of the future to meet one another,—in that it gives these young people a chance to see, hear, and rub shoulders with the nation's scientific great,—in that it places their names and research work with that of the associated research societies of the country,—and in that those who are fortunate enough to come to the conventions carry back to their respective schools the thrill that comes from accomplishments worthwhile, to stimulate and encourage their fellows in biological research.

What Good Is Zoology

HERE is a question, a real problem, fired at the editorial staff by one of our chapter members. We intend to answer her, completely and in detail, after this issue goes to press. Right, now, our first impulse is to question the wisdom of her university in presenting a series of courses, such as Zoology, without the orientation which would justify their being offered. Of course, as she intimates, Zoology is a means to an end for every premedical student, and many zoology professors look at their classes with the cold and fishy eye of a demonstrator in a medical college amphitheatre. But is this all there is to Zoology? Without giving the matter much thought we would like to hazard the offhand guess that there are two sins in zoological teaching which cry to heaven for vengeance today. One is to regard zoology as a necessary evil in preparation for medicine, the other is to regard it as an apologetic course for the safeguarding of the dogma of evolution. More of this later.

The Fun of Editing

THINGS that come easy are never any fun. Victories whether in tennis, bridge or football, mean nothing unless one's opponent is worth while. Research itself would be dull grubbing if it were not for the difficulties of time, matter and literature to be overcome. So, too, in the position of editing our journal, half of the fun is not in turning out a dressy attractive magazine,—that is the printer's glory,—but in assembling the material which goes to make it up.

Even though this is the last issue for the current school year, the editor's work is not through. Behind the scenes in every fresh Biologist that comes to you is a series of year-round activities. Since February we have sent out about fifty requests for articles, papers to be contributed by many of the leading biologists in the country. Naturally we first turn for assistance to those who are or have been interested in the affairs of Phi Sigma, either as active, faculty, or honorary members. Many are gracious in their acceptance and do us the honor of being proud to receive our request. Some seem to be vigorously opposed to all that the Biologist attempts to stand for, and do not mince their words in saying so. Many others do not even answer our letters.

If soliciting feature articles were all, editing would still be easy. But then there are chapter news-letters and articles to be gathered in. This is a task which would try the patience of Job. Take this issue for example. As soon as the printer let us know that the last issue was on the way to you, we rushed out letters prepared in advance to every chapter president and secretary, in the hope that the news-letter of every chapter would be in on time for this issue. By the 23rd of March four chapters were heard from. Dr. Ortenburger came to the rescue and sent out additional letters from his office on March 26th. By the deadline, March 31, we were still sixteen chapter letters short. By April third only four more had arrived so we sent out twelve telegrams to the unheard-from chapters. Of these three active chapters are still among the missing.

These are only part of the fun of editing. When one begins to take into consideration the correspondents who have axes to grind, or already have their hidden stillettos much sharpened and dipped in something rather deadly, and how carefully they must be treated,—then the fun really begins. It is a duel of wit and tact to keep all running smoothly. And just when things seem to be going at their worst, along comes a genial letter from some sympathetic chapter officer, or one of the hard pressed

National Council, or from one of our bighearted honorary members, and then,—as the ads say,—“the pause that refreshes”, we take time out, check up on the score, and wade in again. The greatest fun of all is knowing that you chapter members on the side lines and in the stands are still there, and are not still.

AWARENESS

God—let me be aware.

Let me not stumble blindly down the ways,
Just getting somehow safely through the days,
Not even groping for another hand,
Not even wondering why it all was planned,
Eyes to the ground unseeking for the light,
Soul never aching for a wild-winged flight,
Please, keep me eager just to do my share.
God—let me be aware.

God—let me be aware.

Stab my soul fiercely with others' pain,
Let me walk seeing horror and stain.
Let my hands, groping, find other hands.
Give me the heart that divines, understands.
Give me the courage, wounded, to fight.
Flood me with knowledge, drench me in light.
Please, keep me eager just to do my share.
God—let me be aware.

(*Miriam Teichener*)

Up in one of the little New England seaports lay the good yacht “Psyche.” It had come from one of the southern yacht clubs and was laying in for supplies. One of the older natives of the region, who was long on spelling, though short on mythology, was seen to return time after time to study the craft, and was also observed to shake his head. Finally he could bear it no longer; he swung on a bystander and in a disgusted voice said, “What a hell of a way to spell fish.”—*The Cornell Daily Sun*.

ANABOLICS

April 4, 1935.

My dear Professor Keefe:

May I thank you for your letter of March 5th and for the compliment implied in your request for a contribution for THE BIOLOGIST. I should be very happy, indeed, to send you a short, general manuscript later if you would care to have it. At the present time I am very much rushed so that I would prefer to prepare a short paper during the summer.

You say nothing as to the length of the article in your letter, but I take it from an examination of the copy I received that ten pages of print would be a good length. If you will advise me on this point I will attempt to have a short manuscript in your hands by fall.

Very truly yours,

LEIGH HOADLEY.

THE BIOLOGICAL LABORATORIES
HARVARD UNIVERSITY
CAMBRIDGE, MASSACHUSETTS

We shall await with pleasant anticipation Dr. Hoadley's article.

* * * * *

April 6, 1935.

Dear Doctor Keefe:

I have neither the ability, time nor inclination to prepare an article for the BIOLOGIST. I was opposed to the plan by which such a society as Phi Sigma undertook to publish a journal. The members can not afford to maintain it and the BIOLOGIST serves no useful purpose so far as I can see. It represents energy largely wasted which could be better used by the undergraduates and graduate students who have to maintain the unnecessary luxury of an expensive National Organiza-

tion. The function of Phi Sigma requires no such expensive "set up".

Very truly,

CASWELL GRAVE.

WASHINGTON UNIVERSITY
ST. LOUIS, MO.

We admire Dr. Grave's candor.

* * * * *

March 14, 1935.

Dear Dr. Keefe:

I was very glad to get your note and also the copy of the rejuvenated Biologist. Once upon a time I did write something for this journal, a long time ago, but have not seen much of it since. I had come to the conclusion that I must have helped to kill it.

It is very good of you to ask me to contribute, but at the moment I have so many other things on hand that I would not dare to promise anything. However, if the spirit moves me and I find time, I shall be very glad to unburden myself sometime in the not too distant future.

Sincerely yours,

OTTO C. GLASER.

AMHERST COLLEGE
DEPARTMENT OF BIOLOGY
AMHERST, MASSACHUSETTS

We shall welcome Dr. Glaser's return to the pages of the "Biologist".

* * * * *

March 6, 1935.

My dear Mr. Keefe:

I have your letter of March 5 regarding an Article for The Biologist.

At the present time I am rather busy preparing papers and speeches, especially a speech of acceptance for the Nichols Medal Award to be made April 22. Therefore, I shall have to delay writing any other articles until after that occasion. When I am able, however, I shall be

pleased to contribute an article as you suggest. The subject will probably be "*Research*".

Thank you for the personal copy which you sent to me.

Sincerely yours,

J. A. NIEUWLAND, C. S. C.

UNIVERSITY OF NOTRE DAME
DEPARTMENT OF CHEMISTRY
NOTRE DAME, INDIANA

The "Biologist" congratulates both Dr. Nieuwland and Phi Sigma on the medals he is receiving.

* * * * *

March 17, 1935.

Dear Sir:

I am enclosing the report of Sigma Chapter for the current year. As you no doubt know Sigma has been on the inactive list (unofficially) for several years and this is the first report to be sent in since the inactive status arose. Our chapter took on new life this fall and by all the signs should go on to a better and firmer existence than ever before. Local interest was the cause of this re-awakening and I feel that this same interest is going to keep the Chapter functioning. When the new Secretary is elected I will instruct him to get up a fuller report and get in touch with you.

Sincerely yours,

HOWARD K. WALLACE,
Secretary.

UNIVERSITY OF FLORIDA
DEPARTMENT OF BIOLOGY
GAINESVILLE

The revival of Sigma Chapter is a good sign. Congratulations!

* * * * *

March 25, 1935.

Dear Dr. Keefe:

I am sending with this letter a report of Psi Chapter activities during my term of office. I am also including a copy of our by-laws, thinking

that you might be interested in them. It was conditions similar to those that you referred to in your editorial in the last issue of the Biologist, that made by-laws almost a necessity. And, by the way, that last issue of the Biologist was by far the best that I've seen. I have never cared particularly for long chapter commentaries, and that includes the one I'm sending. Edit it, or omit it, and it won't hurt my feelings a bit. Continue that section on scientific book reviews. I liked that very much; and the longer articles were fine but too few! Personally I'd just as soon you'd omit poems and jokes -but that's just one person's opinion.

A member of Psi chapter just obtained a job at the University of Wyoming at Laramie, and I'll suggest some expansion work to him.

Yours for bigger and better Phi Sigma,

ROBERT H. TSCHUDY.

JOHNSON HALL

UNIVERSITY OF WASHINGTON

SEATTLE, WASHINGTON

An article on Psi Chapter's new by-laws will appear in September issue.

* * * * *

March 30, 1935.

Dear Dr. Keefe:

In reply to your letter requesting comments on the Fall-Winter "Biologist" let me say it was quite generally well received by the members here. I'm not sure whether there have been any other issues within the last two years which have reached us or not but it is the first issue that I had seen for some time. Personally, I believe it to be considerably improved over the last issue I have. Particularly am I interested in the idea of including good short articles by men who know their subjects as you included in this last issue. Also I believe the reports from the various chapters have a definite stimulation and offer perhaps new or different ideas to the various chapters. As a whole I believe this is the best and peppiest issue yet and I should like to commend you in behalf of the chapter for it.

I enclose a general outline of the progress of Zeta chapter since the last notice was sent in. If it needs cutting in any part of course you are

at liberty to do it. I trust it is along the lines you had in mind. Perhaps more personal material such as names of graduates, new members, etc. could have been included, but it seemed this might make it unduly long and not especially interesting to other chapters.

Very truly yours,

VANCE G. SPRAGUE,
Secretary Zeta Chapter.

PHI SIGMA SOCIETY
ZETA CHAPTER
MADISON, WISCONSIN

Sorry you missed the back numbers. Keep in touch with the National Treasurer who will see that you get them in the future.

REDUCED TO A FORMULA

A chemist (a man) has at last been able to analyze women, and here it is: Symbol, WO, a member of the human family. Occurrence—can be found wherever man exists. Physical properties—all colors and sizes. Always appears in disguised conditions—surface of face seldom unprotected by coating of paint or film of powder. Boils at nothing and may freeze at any moment. Melts when properly treated. Very bitter if not used correctly. Chemical properties—extremely active. Possesses great affinity for gold, silver, platinum, and precious stones of all kinds. Violent reaction when left alone by man. Ability to absorb all sorts of expensive foods. Turns green when placed next to a better-appearing sample. Ages very rapidly. Fresh variety has great magnetic attraction. Highly explosive and likely to be dangerous in inexperienced hands—*The Daily Illini*.

Stranger: "Farm products cost more than they did a while back. How do you explain it?"

Farmer: "Well, when a farmer is supposed to know the botanical name of what he's raising and the entomological name of the bugs that eat it and the chemical name of the stuff that will kill the bugs—somebody's got to pay for all this knowledge, ain't they?"

BOOK REVIEWS

BIOLOGICAL POLITICS. F. William Inman. William Wood & Company, Baltimore, 1935. \$3.00.

A provoking, frequently irritating series of essays. The author felt able to treat the debatable topics inevitably raised by the application of biological truths to the field of political science "lightly and amusingly". His light touch is magnificently elephantine. He is an English medical man and his idea of what is "amusing" is beyond imagination, and do not move one to pity even for he "tries to be funny". One who agrees with many of the conclusions of the essays will regret that so many of the arguments are phrased so as to be unnecessarily offensive. One may suggest, for example, euthanasia for the socially unfit without referring to them as so much human garbage and one may question the wisdom of "charitable" agencies without comparing misguided humanitarian efforts to a health officer blocking up a municipal sewer. The best review of the book might be simply to call attention to the fact that this comparison so delights the author that he uses it twice (pp. 9, 49).

Originally printed by Wright-Bristol, London, the volume surely never issued out of Wood's. It is small point type, narrow margined and cramped,—a completely unattractive format for a book which ought to have a wide reading because, despite its manifest and manifold inadequacies, it does suggest the possibilities latent in this virgin field.

BIOLOGY FOR EVERYMAN, J. Arthur Thomson,—E. P. Dutton & Co., Inc., New York, 1935. Two Volumes Complete, \$5.00.

Buy this two volume biological library if you have to sell your collegiate Ford or cut the Junior Prom to do it. Here are 1600 excellently printed pages of well selected, charmingly written, adequately illustrated and wisely edited material, helpful to every biologist, be he engaged in teaching or not. That it will offer the inquiring layman a reliable source of information goes without saying. The author's recent death robbed the biological sciences of one of their most intelligent publicists, but fortunately before his going he had completed what posterity will regard as the greatest work of his career. No book in

the English language has thus far so closely organized and orientated our knowledge in the allied geological, botanical, zoological or human fields. For those whose research is, like the microscope, continually narrowing their field of vision, this book is indispensable.

THE CALIFORNIA DESERTS, Edmund C. Jaeger,—Stanford University Press, Stanford University, California, 1933. \$2.00.

Ecologists in general, and professors of ecology in particular, will relish this work. It gives something more than mere statistical information regarding the silent deserts of our great Western State. One cannot but be impressed by all the hidden life and color there must be in the California deserts.

DIET IN SINUS INFECTIONS AND COLDS, Egon V. Ullmann,—The Macmillan Co., New York, 1934. \$2.00.

If the press notices of Cornell's success in diminishing student colds and coughs by alkalinizing blood and submitting to ultra-violet radiation are true, then this book is a decided help to anyone suffering from the disagreeable effects of sinus infections. Naturally one's physician is a necessity in all serious cases, but a little intelligent prophylaxis with one's meals would seem to do wonders.

THE DOCTOR IN HISTORY, Howard W. Haggard,—Yale University Press, New Haven, Conn., 1934. \$3.75.

Here is the latest of Dr. Haggard's works on the history of medicine. It is also the most calmly critical of them all, and as such should be of value in the library of every educational institution whether it offers medical training or not. Naturally, the intelligent physician will want at least to have read it, if he has not purchased it for his own personal use.

ERINNERUNGEN UND WELTEINDRUCKE EINES NATURFORSCHERS, Hans Molisch—Emil Haim, Wien und Leipzig, 1934. RM 9.
—Bound: RM 10.80.

Written in clear idiomatic German this fascinating autobiography should be easily within the reach of the average biological student. After all, a man who can speak of meeting Abbot Mendel in the flesh, who has circumnavigated the globe more than once, and who has reached the highest honors science and education can offer, should be worthy of a little earnest "plugging" of a foreign language to appreciate his interesting career and personality.

FERNS OF NORTH CAROLINA, H. L. Blomquist,—Duke University Press, Durham, N. C., 1934. \$2.00.

Duke University has done a service to the states of the Atlantic seaboard, in publishing this attractive manual. It will be useful to every amateur and professional botanist and ecologist in the southern and eastern region. Fern lovers and collectors from other parts of the country will want to possess it too. One look at its many carefully drawn illustrations and ample text will convince them of its worth. The author is a member of Tau chapter of Phi Sigma.

GENERAL BOTANY FOR COLLEGES, R. E. Torrey,—The Century Co., New York, 1932. \$3.50.

The present edition of Dr. Torrey's contribution to the Century Biological Series cannot be advanced as a good text for botanical diletantes who are looking for college credits with a minimum of mental effort. This is a text which tells you what you ought to know as you ought to know it. A natural descendant of Asa Gray's "Structural Botany" it manifests considerable divergence from the many texts based on the Strassburger model. As such it should be studied carefully by the candidate for the Ph. D. who needs a well rounded view on general botanical literature as well as the field of his specialization.

THE GRAMINEAE, Agnes Arber,—Cambridge: at The University Press; New York: The Macmillan Co., 1934. \$8.50.

Most botanists, not to say even the taxonomists, prefer to give the lower monocots a wide leeway in their work. The cereals, the bamboos and the grasses are more honored, like Hamlet's Sunday, in the breach than in the observance. Agnes Arber's monumental work will probably stand for years as the last word in graminology. Perhaps a little costly due to the thousands of individual figures (there are 212 groups of them), the book will not readily find its way into the private library of many a botanist. It should, however, be on the shelves of every college library.

GYMNOSPERMS, Chas. J. Chamberlain,—The University of Chicago Press, Chicago, 1935. \$4.50.

The name of the author of this work is its own best recommendation. There is no other authority in the field of gymnosperm evolution competent to write a definitive textbook such as this. A wealth of new photographs, diagrams and sketches enliven the text, which is given about half to the prehistoric forms and their living congeners. The

balance of the work is mainly devoted to the most common forms, the conifers, and to the gnetales. A bibliography of 719 references adequately finishes off this almost perfect text.

A HISTORY OF EMBRYOLOGY, Joseph Needham,—Cambridge: at The University Press; New York: The Macmillan Co., 1934. \$4.00.

It was to be expected that as the more general histories of science became plentiful and exact, their authors, or other specialists, would be led to pursue the history of each individual branch of science. Such is the case with the present volume. Dr. Needham carries the story along from antiquity to the dawn of the nineteenth century. In so doing he has painstakingly sought out many an unknown author, evaluated his contribution and presented him in his proportioned place in the history of the field. Withal the author is never dull. He has presented the finest contribution we have thus far seen of the background and the origin of the preformationist-epigeneticist controversy, which alone would make the work worth-while. It is most eminently a book which should be in every college library, as well as among the books of anyone who essays to teach embryology.

HOMES AND HABITS OF WILD ANIMALS, Karl P. Schmidt,—M. A. Donahue & Co., Chicago, 1934.

This is the right kind of a natural history to place in the hands of any normally intelligent inquisitive youngster, especially one who has access to animals in the wild, or in the zoo. Its author is a member of the staff of the Field Museum in Chicago, which should vouch for the authenticity of its facts. The many and decidedly unusual illustrations in color and in sepia are the work of W. A. Weber, who contributed much to the "Birds of Minnesota," reviewed in our last issue. If you are thinking of buying this book for some young hopeful you should write the publisher first and inquire the price. We received the book for review without that important bit of information.

HUMAN EMBRYOLOGY AND MORPHOLOGY, Sir Arthur Keith,—William Wood & Co., Baltimore, 1933. \$10.00.

Written originally for medical students at the dawn of the present century, this work is now in its fifth well-merited edition. It is more than another embryological text. It is a reference book which every anthropologist should have at his elbow. With their usual thoroughness, the publishers have spared no pains to make it a distinctly useful volume.

INTRODUCTORY COURSE IN SCIENCE FOR COLLEGES: Jean, Harrah, Herman, Powers.

Vol. I, Man and the Nature of His Physical Universe;

Vol. II, Man and the Nature of His Biological World.

Ginn & Company, Boston, 1934. No price indicated.

These two weighty volumes for the use of college freshmen are the combined product of three teachers' college people and naturally represent their attitude on what should be offered to the American College Freshman. As usual under such conditions the freshmen get a little of everything and not much of anything. A good week of orientation lectures in either geology, botany or zoology would convey about all that is worth while in these two volumes, and leave the rest of the year for some really collegiate WORK. If your reviewer were to "do it all over again" he would still prefer the hoary-headed old sinner who taught him his first year of zoology and botany in college, to all the bright young theorists who have come wild-eyed out of the thousand teachers colleges in recent years. And we do not even exclude that institution on the banks of the Hudson which inspires the policies of so many of our state teacher-training institutions.

A MANUAL OF DRAWING FOR SCIENCE STUDENTS, J. F. Mueller,—Farrar & Rinehart, Inc., New York, 1935. \$1.75.

At last someone has taken pity of the neophytes of science and prepared an intelligible text on the how and the why of scientific illustration. Much of this material has hitherto been found,—if it could be found at all,—in scattered manuals of the various branches of science. Even then it rarely hit the spot for the zoologist or botanist, whose ineffective, and often unconvincing illustrations belied what was otherwise a good piece of research. This is another book which you should buy if you can afford it, and if you can't, get after your librarian to procure several copies for the library,—reserving one for yourself when they arrive.

MIKE THE CAT, Creighton Peet, Loring & Mussey, New York, 1934. \$2.00.

If you are interested in cats, photography, psychology,—or someone who is interested in any or all of the three, you will enjoy this book. One reviewer called it a study in cat-psychology. It is more than that. It is the finest series of photographs thus far produced with the ordinary garden variety of house-cat as a subject. Prospective animal photographers will do well to study it carefully.

THE PHILOSOPHY OF A BIOLOGIST, J. S. Haldane, Oxford University Press, New York, 1935. \$2.50.

The summation of the life-philosophy of one of the foremost thinkers and research workers of the present day is bound to be of interest. That Professor Haldane is a theist will be a help to many undecided biologists. To others it will be merely a biochemical reaction.

PLANTS USEFUL TO MAN, W. W. Robbins & F. Ramaley,—P. Blakiston's Son & Co., Philadelphia, 1933. \$3.00.

Anyone who expects to teach botany to the average undergraduate would do himself, his teaching and his students a favor if he would make a study of this helpful work. It is not too advanced for even the teacher in high school science. Nor is it filled with useless traditional lore of no interest to anyone not an antiquarian. What it has to offer is apposite and helpful.

PRINCIPLES OF GENETICS AND EUGENICS, Nathan Fasten,—Ginn and Company, Boston, 1935. \$2.80.

This is a book which was prepared for undergraduates who want to know something about the mysteries of genetics and are daunted by the technicalities of the various plant or animal terminologies used by modern research workers. As such this volume will find an assured and welcome place in the college library reference section. Compressing so much in so little space, it is not free from minor slips and errors, but they are perhaps errors of the heart rather than of the head.

THE STRUGGLE FOR EXISTENCE, G. F. Gause,—Williams & Wilkins Co., Baltimore, 1934. \$3.00.

After almost everyone had given up Darwin's theory of the struggle for existence as a lost cause, along came this highly technical and painstakingly prepared work to upset the theoretical apple-cart. Whether subsequent research work along these lines will substantiate or contradict Gause's findings remains to be seen. Until that time this work must definitely be reckoned with in any approach to the evolutionary question.

The man who cannot afford to get down off his perch and move about among his fellows is wasting his time at a modern university. All the wisdom and learning that he may accumulate will not save him from a fossilized old age.—*McGill Daily*.

CHAPTER NEWS LETTERS

Beta

President—William M. Clay, Zoology Department, University of Michigan, Ann Arbor, Michigan.

Vice-President—Henry Meyer, Zoology Department, University of Michigan, Ann Arbor, Michigan.

Recording Secretary—Lois Jotter, Martha Cook Bldg., Ann Arbor, Michigan.

Corresponding Secretary—T. P. Haines, Zoology Department, University of Michigan, Ann Arbor, Michigan.

Treasurer—James B. Griffin, Museums Bldg., University of Michigan, Ann Arbor, Michigan.

On October 3, 1934, though our ranks had been somewhat depleted due to graduation of several of our members, a nucleus of about 20 Beta-ites harkened to the summons "The meeting will come to order" as it issued from the mouth of our president, Mr. William C. Clay.

At this meeting Mr. Clay asked the cooperation of all members in making the year's activities worth while, by establishing the premise that regular attendance and active participation in all of the chapter's functions are imperative to the welfare of both the individual member and Phi Sigma at large.

During the past winter ten meetings of Beta chapter have been held. At these meetings seven lectures by active members and three by faculty members were presented. In each instance lively discussions, concerning the various topics, followed. The speakers and their topics were as follows: Mr. T. P. Haines, "The Life History of the Kingfisher". Mr. H. K. Gloyd, "Methods of Collecting and Preserving Reptiles". Dr. Jean D. Arnold, "Garibaldi, the Garden of the Thundergod". Professor Frieda Cobb Blanchard, "Australian Animals". Mr. W. C. Frohne, "Collecting Butterflies in The Old Country". Mr. A. Archer, "The Ecology of the Land Mollusca of Cherokee County, North Carolina". Professor W. A. Hinsdale, "Perforated Human Skulls found in Michigan and Eastern United States". Mr. Roger Conant, "Problems of Zoo-management". Mr. R. A. Deno, "Sexual-cycle in a Female Mouse".

At a meeting held January 23, 1935, the following were initiated: Morton Goetting, Roderie Howell, Gretta Iutzi, Charles Hoyt, Charles Jennings, Henry Krul, James Merry, Mary Reeder, Emil Schnap,

Wayne Whitaker, Patricia Woodward, Albert Worrel, and Chris Zaronetis. At this meeting Professor R. F. Hussey, the first president of Beta chapter, presented the initiates with their membership certificates, after which he delivered an interesting talk on the subject, "Hunting Extinct Animals".

The excellent attendance at and the spirit of harmony that prevailed during each of these meetings which have been held, up to the time of this writing, stand as witnesses of the fact that Beta chapter is very much alive.

HENRY MEYER,
Vice President.

Delta

President—Joel W. March, Phi Kappa Sigma, Orono, Me.

Vice-President—Robert F. Bucknam, Beta Theta Pi, Orono, Me.

Secretary—Ruth C. Harding, 162 College Road, Orono, Me.

Treasurer—Maurice K. Goddard, Phi Kappa Sigma, Orono, Me.

Delta Chapter has decided to become inactive. With conditions as they are on the campus it seems to be the only thing to do. We have written the secretary for advice as to what action to take. Under these circumstances it does not seem advisable to send a chapter letter. I am sorry that we have caused you so much trouble.

Yours truly,

RUTH C. HARDING
Secretary.

Epsilon

President—Henry W. Merritt, 649 So. York Street, Denver, Colorado.

Vice-President—Gertrude Luebke, 2076 So. Fillmore Street, Denver, Colorado.

Secretary—Elizabeth Lewis, 2930 E. Fourteenth, Denver, Colorado.

Treasurer—Jack Cotter, 2335 Hudson Street, Denver, Colorado.

The first meeting of the school year was held in Main Club Room, on the campus. The speaker of the evening was Dr. A. E. B. Renaud of the Anthropology Department at the university, who entertained the group with an interesting talk on "The Early Remains of Man". Lantern slides used to illustrate his talk added to our enjoyment.

Our second meeting was held in the Renaissance Room of the new Reed Library. This was an open meeting, and many guests were pres-

ent. Professor H. G. Owen reviewed the history of the national organization and the history of our own chapter. Following this, pledge ribbons were pinned on the following: Dorothy Funk, Robert Hardaway, Beverly Hart, Abe Kauvar, Lula Lubchenco, Gladys MacIntosh, Harry Roe.

Dr. Fred D'Amour of the Department of Physiology gave an illustrated talk on research work done last summer by himself and Mrs. Frederick Becker of the Department of Zoology on "The Black Widow Spider". The remainder of the evening was given over to getting acquainted with our guests. Punch and cake were served.

The January meeting of the chapter was held at the home of one of the members, Gertrude Luebke. The program was in charge of the members, and two interesting talks were given by Jack Cotter and Jimmy Dutcher. Jack told us of his research work with spear heads, while Jimmy related what he and his partner had been doing with rats in the study of hormones.

The February meeting was the initiation banquet, held at the Buchtel Club. After dinner, Dr. Ernest Brunquist talked to us. Then each of the pledges entertained us with songs and stunts, and the evening was culminated with the formal initiation service. Those initiated were:

Dorothy Eleanor Funk	Zoology
Robert Morris Hardaway	Zoology
William Beverly Hart	Botany
Abraham J. Kauvar	Zoology
Lula Olga Lubchenco	Zoology

The March meeting was a guest meeting, and all majors in the three departments were invited. We met at the Beta Theta Pi House. Mr. Robert J. Niedrach, of the Colorado Museum of Natural History, entertained us with moving pictures of birds. Doughnuts and coffee were served.

We are planning another pledging and initiation late in the spring. We are also anticipating a picnic in the mountains when the weather permits it,

BETTY LEWIS,
Secretary,

Zeta

President—A. J. Ullstrup, Plant Pathology Bldg., University of Wisconsin, Madison, Wisconsin.

Vice-President—H. Clarke, Botany Bldg., University of Wisconsin, Madison, Wisconsin.

Secretary—V. Sprague, Agronomy Bldg., University of Wisconsin, Madison, Wisconsin.

Treasurer—A. D. Hasler, Biology Bldg., University of Wisconsin, Madison, Wisconsin.

Editor—V. Gisvold, Chemistry Bldg., University of Wisconsin, Madison, Wisconsin.

Zeta chapter is putting in an active year. The open meetings have attracted large audiences of graduate students and staff members interested in the progress of knowledge in the fields of the biological sciences. Prof. Aldo Leopold, who is among the first in the country to recognize the need for wild game research brought to an interested audience a very enlightening lecture on game management and its beginnings only a few years ago. He pointed out how men such as Errington and Stoddard have approached this problem from a scientific viewpoint. His own accomplishments in the field of game management have added much to national movement pointing toward a thorough understanding of the principles of game research and their application in maintaining the desired population level of any game species.

Prof. Chauncey Juday who has been working with Dr. E. A. Birge studying the lakes of Northern Wisconsin gave a very interesting and instructive lecture on "Limnological Studies of Wisconsin Lakes". The interrelationships between the color of the water, the flora and the intensity of the light at various depths has been studied. The problem of fertilizing some of the smaller lakes to provide more plant food for fish has shown some interesting results.

Prof. L. E. Noland of the Zoology Department who has been away on leave of absence to study at some of the leading zoological stations in the country gave a very interesting illustrated lecture showing many of the uncommon and unique types of life which inhabit the various ocean waters; from the inhabitants of the cold waters of Puget Sound to those in some of the warm sluggish bays in Florida.

At our fall initiation banquet we were glad to have join with us twelve graduate students who have been engaged in active biological research for a year or more at Wisconsin. As our speaker at the ban-

quet, Dr. Geo. S. Bryan of the Botany Department presented a very interesting illustrated lecture depicting a primitive people, a rugged country, and the society arising from such a combination as he encountered them on a recent expedition into the interior of Africa and South America.

On March 26, Zeta chapter in co-operation with Sigma Delta Epsilon sponsored a public lecture by Dr. J. G. Leach, Associate Plant Pathologist at the University of Minnesota on "The Role of Insects in the Spread and Development of Plant Diseases". Dr. Leach presented to an interested audience the interrelationships between many plant diseases and their particular insect vectors. Two reels of a movie made at the University of Minnesota showing the activity of the bark beetle in transmitting the blue stain fungus of pine was very interesting and instructive.

Plans are now under way for our Spring Initiation Banquet to be held the fore part of May.

A number of our members have gotten positions since the last issue of the "Biologist".

Dr. H. E. Sagen, one of our "old stand-bys" in Bacteriology and who has been one of our most active members has taken a position with the Abbott Laboratories in Waukegan, Ill.

Dr. A. J. Ulstrup who has been in the Plant Pathology Department at Wisconsin has accepted a Research Fellowship with the Rockefeller Foundation to work at Princeton University.

Dr. R. O. Maggie has accepted a position with the U. S. D. A. at Morristown, N. J., where he will be engaged in work on the Dutch Elm Disease.

VANCE G. SPRAGUE,
Secretary.

Eta

President—John Van Sickle, 303 First Cabin Court, Akron, Ohio.

Vice-President—Richard Stahl, 901 Kenmore Blvd., Akron, Ohio.

Secretary—Margaret Wodthe, 57 Casterton Ave., Akron, Ohio.

Treasurer—George Van Doros, 670 Carroll St., Akron, Ohio.

Many of our alumni are continuing biological work in one of several fields.

Mr. Sumner Vanica, Miss Marjorie Brouse, and Mr. Leo Goodman are engaged in teaching biology in Akron schools,

Mr. Harold Zintel, President of Eta chapter 1933-1934, is leading the freshman class at the medical school of the University of Pennsylvania, and Mr. Edgar Wentsler, President of Eta 1932-1933, is sixth in the same class. At Akron University both were student assistants in the Biology Department and did outstanding work in photo-microscopy and anatomy.

Mr. Howard Maryanski, Mr. Charles McClelland, and Mr. William Ryan are attending Western Reserve Medical School, and Mr. James Easton is in medical school at the University of Alabama.

Miss Dorothy Schneider, graduate assistant in botany and a candidate for a Masters Degree, is cultivating algae on sterile media (mineral agar) and also continuing her work on the germination of fern-spores and the growth of liver-worts.

Phi Sigma members on the faculty are engaged in interesting projects in their respective fields.

Dr. Paul Acquarone is investigating the digestive enzymes in ripening fruits.

Professor R. D. Fox, our faculty advisor, is continuing his investigation of actinomycetes. He will continue during the summer on the cooperative plan with the City of Akron, Department of Health and the Laboratory of Hygiene and Bacteriology of the University of Akron.

Dr. Edgar P. Jones is investigating the action of excretory products on protozoan populations. This is being coordinated with a study of the methods of stock culture maintenance.

Dr. Walter Kraatz plans to resume Plankton work at the Portage Lakes near Akron this summer.

Four active members of Eta chapter, Jack Hall, Richard Stahl, George Van Doros, and John Van Sickle, are student assistants in the Biology Department of the University of Akron. Two members are doing special projects in the bacteriological field: Mr. Jack Hall is studying the cultural characteristics of *Botulinis*; Miss Beatrice Toharsky is studying laboratory procedure and hospital technique. Mr. Richard Stahl is studying a project in anatomy.

Eta's semi-weekly meetings have consisted of student programs with special reports on such topics as *Botulism* and the history and etiology of Typhus Fever. At our monthly open meeting in March Dr. Helgeson, an alumnus of Zeta chapter of Phi Sigma, spoke on "Plant Physiology". Outstanding physicians of Akron have been the guest speakers at previous open meetings.

In conclusion just a few comments on the last edition of the BIOLOGIST: Eta members desire more specificity in the articles, more definite information about important research discoveries, less biography, and less personal opinion. Eta anticipates a BIOLOGIST in which all the material is as interesting as the jokes.

MARGARET WODTHE,
Secretary.

Theta

President—C. W. Frutchev, Botany Dept., Michigan State College, East Lansing, Michigan.

Vice-President—H. L. Dunton, Farm Crops Dept., Michigan College, East Lansing Michigan.

Secretary—W. E. Heston, Zoology Dept., Michigan State College, East Lansing, Michigan.

Treasurer—W. Smith; Horticulture Dept., Michigan State College, East Lansing, Michigan.

Theta Chapter of Phi Sigma was fortunate in having Dean E. A. Bessey, Dean of the Graduate School, as speaker for its only meeting as yet this year. Dean Bessey gave an enlightening talk on "Sexual Processes in the Fungi".

Dr. H. R. Hunt of the Zoology Department has consented to give a lecture sponsored by the chapter early in the spring term. This will be a lecture on some phase of Human Heredity, a field in which Dr. Hunt is quite eminent.

Initiation for 1934-1935 will be held late this year. The 1933-34 initiation was held in May. At that time fourteen graduate students and faculty members were initiated. These were all outstanding people who were quite worthy of being admitted into Phi Sigma.

W. E. HESTON,
Secretary.

Kappa

President—Claude Hibbard, Zoology Depart., University of Kansas, Lawrence, Kansas.

Vice-President—A. B. Leonard, Zoology Dept., University of Kansas, Lawrence, Kansas.

Secretary—Lyman S. Henderson, University of Kansas, Lawrence, Kansas.

Treasurer—James Bates, Botany Dept., University of Kansas, Lawrence, Kansas.

Up to the present time Kappa Chapter of Phi Sigma has had eight meetings during the 1934-35 school year.

At the first meeting Mr. David Dunkle and Mr. Hobart Smith, two of our members from the Department of Zoology, gave an interesting account of a summer trip through Mexico. The purpose of the trip was primarily to collect herpetological specimens.

The second meeting was an initiation banquet. At this meeting Dr. H. H. Lane, head of the Department of Zoology, gave an address on "The Research Worker and His Methods."

At the third meeting Dr. R. C. Moore, head of the Department of Geology, and a member of the editorial board of Science Bulletin, of the University of Kansas, gave an address on "The Preparation of Manuscript and Plates for Publication."

Since then the meetings have been turned over to a speaker from each of the different departments so that he might give a resume of present trends of research, and methods of attacking research problems in his field. The series has been extremely interesting and profitable to all our members. The rest of the meetings this year will be a continuation of this series.

At our fall banquet the following new members were initiated:

Bacteriology—Lewis Coriell, Robin Hood, Alan Jay, Dean Dvorak, Ruth Hardacre.

Psychology—Alfred Baldwin, Robert Barnhart, Charles Manly, Mirriam Murray, Bertha Pratt.

Anatomy—Clarence Asling.

Entomology—Lawrence Penner, Stuart Clare.

Zoology—David Dunkle.

The following were elected this spring, and initiated at our last meeting:

Bacteriology—Edna Niemann.

Zoology—Myra Wildish, Charles Gilbert.

Entomology—Joe Hidalgo.

Psychology—Wm. Orbison.

LYMAN S. HENDERSON,
Chapter Secretary.

Lambda

President—Ed Dohrinz, Missoula, Montana.

Vice-President—Lilian Ruth Hopkins, 219 S. 5W., Missoula, Montana.

Secretary—Joe Wagner, 423 E. Main, Missoula, Montana.

Treasurer—Kenneth Rhude, 740 Eddy Avenue, Missoula, Montana.

Lambda chapter of Phi Sigma resumed activities on the campus in the fall with much enthusiasm and pep. Since President Loyd Bernhard had withdrawn from school, we set out by electing Ed Dohrinz to the Presidency.

In January thirteen new members were initiated. The new initiates included Dr. G. F. Simmons, Assistant Professor of Botany, W. Chas. Bell, T. E. Brierly, Ralph W. Schofield, Margaret Ann Brome, Alastair Campbell, Virginia Graybeal, Hanlyn Johnson, Roy Quastrom, Emma Quast, Lester Robbins, Royal J. Turley, Robert M. Meyers.

Dr. C. W. Waters, Professor of Botany was on leave during Fall and Winter Quarters to carry on an extended research on "Blister Rust". He has prepared a pamphlet for government use.

Dr. Morton J. Elrod, Professor of Biology, and one of the most beloved members of the University faculty suffered a severe stroke last June and was forced to resign his position. He has been extremely active in Phi Sigma since its entrance on the campus. We all wish him a speedy recovery.

Dr. R. T. Young formerly of the Biology School Faculty, is now doing extensive research work. His resignation is keenly regretted.

Spring quarter has brought forth a list of promising candidates whom we hope to initiate soon.

JOE A. WAGNER,
Secretary.

Mu

President—Omer C. Stewart, Room 1, Anthropology Building, University of California.

Vice-President—Barbara D. Blanchard, 2593 Life Science Bldg., University of California.

Treasurer—Alfred S. Lazarus, 3551 Life Science Bldg., University of California.

Secretary—Thomas G. Aitken, 112 Agriculture Hall, University of California.

This school year has been an enthusiastic one for Mu chapter. Perhaps it is because we have tried several experiments in types of

meetings. Formerly we have had business meetings with refreshments served afterwards for the regular meetings during the year, with one dinner meeting, the initiation banquet, each semester. This year our first meeting, a dinner meeting, was so successful that we decided to repeat the trial. We find that we have much more interest and better attendance at such meetings than at those which are not dinner meetings. We have had seven meetings so far this year, and our schedule calls for one more before the beginning of finals. Six of those meetings have been dinner meetings, the last of which was another innovation—a cafeteria style dinner, each person being able to pick the food and the price. In the type of program there have been no innovations, there is always one speaker from the faculty who is the “feature of the evening”. Our speakers this year have been chosen from many different departments, Anatomy, Forestry, Bacteriology, Anthropology, Nutrition, Plant Physiology, and Botany. By having such a wide variety of interests represented by the speakers we have been able to tie in all the interests of the members and make our chapter more homogeneous.

Our initiations have been very successful, also. Our forty-eight new members have proved real assets to the organization and added new enthusiasm to that already present. Aside from the new initiates from our own university we have added to our roll several from other institutions. We are always very glad to have Phi Sigma members transfer to our chapter when they join us in our work here at California.

Officers for the ensuing year were elected and inaugurated at the last meeting. They are: President, Omer C. Stewart, Anthropology; Vice President, Barbara D. Blanchard, Zoology; Alfred Lazarus, Bacteriology; Secretary, Thomas G. Aitken, Entomology.

Our chapter is ready for another good year in 1935-36, hoping to add more good members to our chapter, and more good chapters to our national roll! We send our greetings and best wishes to all the chapters, especially to the neophytes of the organization. May we all become better acquainted in the future.

We have about 200 members who are more or less active. It would be almost impossible to mention some without slighting others no less active, interesting, or important. Perhaps the new secretary will be more clever than I and be able to glean the most outstanding achievements and write them up next year. I do think it is interesting to

note anything of real worth that has been accomplished by the members.

You ask for comments about the Biologist. I can't give you any unfavorable ones—because I have heard none. It *has* been said in our chapter, though I personally have not heard it, that it would be better to make the magazine less expensive by using cheaper paper. But I am sure that if less attractive paper were used that it would not be so well liked. Of favorable comments there have been many. Many remarked about the flaming cover—not especially favorably as an ordinary occurrence, but nice for a change. And as for the contents—we have all enjoyed it very much. It seems to me that the last two numbers have created more enthusiasm than the previous ones. The articles such as those by Dr. Causey have been read with much interest and caused quite a lot of discussion. Such short items as that about the potatoes which are not only easy to read and interesting, but give bits of information which it is good to know are, I believe, much better than the jokes which are interspersed, tho it is well to have some of those, too. We also found it inspiring to read the report of the Pittsburgh meetings, to see what our members are doing, especially, of course, our chapter members and former members, to see where they are, what they are doing and writing about. Book reviews, too, are always good, especially of the type of books which you give.

MARGUERITE BALDWIN,
Secretary.

Nu

President—F. W. Koenig, 150 E. Marden Street, Washington, Pennsylvania.
Vice-President—P. C. Grana, 209 North Avenue, Washington, Pennsylvania.
Secretary-Treasurer—B. R. Mooney, 209 North Avenue, Washington, Pa.

The Nu chapter of Phi Sigma opened the academic year, 1934-1935, with but three active members. At our first meeting it was decided to hold a Fall initiation as a number of men were eligible for membership. At our first meeting in November the following men were initiated into the Society: G. E. Hess, C. A. Ely, J. Moses, J. L. Bryant, W. L. Proudfit and J. D. Maxwell.

Regular meetings are held every two weeks and quite often a called meeting is held in the odd week. Generally the meetings consist of a short business meeting followed by a paper from one of the members. During the year members have given papers as follows:

- P. C. Grana—The Inheritance of Acquired Characters.
F. W. Koenig—The Physiology and Biology of Twins.
C. A. Ely—The Bacteriophage.
G. E. Hess—The Endocrine Glands.
J. L. Bryant—The History of the Physician.
B. R. Mooney—Bacterial Enzymes.
J. Moses—The History of the Microscope.

J. D. Maxwell and W. L. Proudfit have been assigned dates for their papers during April and May. At one of the meetings a group project was worked out in which each member gave a review of some article in one of the current Biological Journals.

The Society is assisting the staff of the Biology department in reviving an old custom that has been dropped for several years, namely, the holding of an open house day. Some time about May 10, the Department will open its doors to the student body, high school students and any one else interested in Biology. On this day many of the simpler biological laws and phenomena will be exhibited and demonstrated to the public by the staff of the department and members of Phi Sigma Society. Already committees from the society have been appointed and are working on different demonstrations from the various sections in the department. A banquet for the society is also being planned for in April.

From among the active members, P. C. Grana, F. W. Koenig, G. E. Hess and B. R. Mooney will graduate in June. All of these men are Pre-Medical students and plan to enter Medical Schools next Fall. W. S. Proudfit will probably complete his Pre-Medical course at the end of the summer term and also plans to enter Medical School in the Fall.

Our chapter advisor Dr. Dieter, who received his Ph.D. degree in Biology from the University of Pittsburgh last August, was recently taken into the chapter of Sigma Xi at that University. Another faculty member, Mr. Porter, is completing the work for his Ph. D. degree and will probably receive the degree from the University of Pittsburgh during the next summer. His thesis is "Morphological and Experimental Studies on the Musculature of *Triturus Viredescens*." G. B. Osterman a fellow in the Biology Department and member of the Society, is completing the work for his M. A. degree and will receive the degree here in June. His work is on "Studies On the Germ Cells of *Triturus Viredescens*."

At one of the meetings of the society a discussion of the Sept.—Dec. issue of "The Biologist" brought forth nothing but praise for the magazine. The article by Dr. Causey seemed to be extremely popular.

B. R. MOONEY
Secretary.

Rho

President—Frank Thorp, Jr., Pathology Lab., University of Illinois, Urbana, Illinois.

Vice-President—Wm. Hoheisel, 301 Natural History, University of Illinois, Urbana, Illinois.

Secretary—Sunshine Park, 365a Chemistry Bldg., University of Illinois, Urbana, Illinois.

Treasurer—Janice Smith, 211 Woman's Bldg., University of Illinois, Urbana, Illinois.

We were a very discouraged chapter early in 1934-35 but now it appears that low membership and the depression are on the wane and we are looking forward to a very successful year in 1935-36. Four open meetings were held during the year and there was a marked increase in interest and attendance.

C. C. Compton, Entomologist of the State Natural History Survey, gave an illustrated lecture on "Insect Outbreaks of 1933".

Dr. A. R. Cahn, Department of Zoology, presented his color movies taken in Norway last summer and spoke on "Under the Midnight Sun—a Norwegian Summer".

Dr. H. A. Ruehe, Head of Dairy Husbandry, spoke on "Graduate Study" and Dr. H. J. Sloan, Department of Animal Husbandry and Dr. F. B. Adamstone, Department of Zoology, gave a symposium on the "Effect of an Iron Treated Ration Upon Chicks".

The annual initiation and dinner was held April 3 in the Southern Tearoom and 52 members were present. Prof. W. P. Hayes, Department of Entomology, was toastmaster. The addresses were made by our two newly elected honorary members, Prof. F. W. Tanner and Prof. H. J. Van Cleave. Both these men were charter members of our chapter. Besides our honorary members three faculty members,—Dr. W. L. Burlison, Agronomy, Dr. Henrietta Hayden, Home Economics, and Dr. F. R. Steggerda, and 21 active members were initiated—L. C. Chapman, Department of Agriculture; C. H. Mueller, Stephen Diachun, Katharine Kinsel, Virginia Gangstad, Shirley Nielsen, J. Selett,

Department of Botany; D. Powell, G. K. Schumaker, C. C. Compton, Department of Entomology; Jeanette Cohen, Laura Flynn, Bernadine Meyer, Romeyn Markland, Mrs. Darline Knowles, Department of Home Economics; R. P. Hager, E. E. Shipman, R. W. Dexter, W. M. Scruggs, P. A. Meglitsch, and J. D. Mizelle, Department of Zoology.

In Entomology, Dr. W. V. Balduff is co-author on a book, "Insect Parasites" and Dr. Lee Townsend (Ph. D. Feb., 1935) has an article "The classification of the Larvae of Neuroptera".

N. T. Mattox (Miami chapter), H. L. Gravitt and A. Twomey of the Department of Zoology have been made associates in Sigma Xi.

L. E. Miller received his master's in Zoology in February.

John Dolley is now in the Department of Zoology at Fairport, Iowa.

Prof. H. J. VanCleave (Department of Zoology) and Prof. F. W. Tanner (Head of Department of Bacteriology) are members of the committee for betterment of the pre medic course. Prof. Tanner is presenting a paper at the Illinois State Academy of Science.

The chapter secretary passed her prelims for the doctorate in Bacteriology in February.

R. L. Matlock (Ph. D., Agronomy '30) is Assistant Professor and Assistant Agronomist of U. of Arizona. Most of his time is spent on cotton and soy bean investigations.

Floyd L. Winter (Ph. D. Agronomy '28) is in charge of vegetable crop breeding for the Associated Seed Growers of Milpitas, Calif.

Merl F. Hershberger (M. S. Agronomy '31) has recently been appointed as Junior Soils Expert, Soil Erosion Service, Janesville, Ohio.

H. L. Buckhardt (Ph. D. Agronomy '32) has recently been appointed to an extension position in the College of Agriculture as a soil Erosion Coordinator.

Collins Veach (Ph. D., Agronomy '29) is chemist for the Corn Products Manufacturing Co., at Argo, Ill. Mrs. Veach is the former Matilda Krenz (Ph. D. Botany).

Opal Hartline (Botany) will receive her Ph. D. this June.

SUNSHINE PARK,
Secretary.

Sigma

Secretary—Howard K. Wallace.

During the past several months open meetings have been held on the evening of the first Monday of each month. The program for each

meeting consisted of a single paper presented on the occasion. They have been as follows:

January 7th—"Some Applications of Emission Spectrography to Biological Problems" by Mr. L. H. Rogers, U. of F.

February 4th—"Studies on the Stimulation of Cell Division in Crown Gall of Plants and Their Possible Relation to Studies on Cancer" by Dr. A. J. Riker, Univ. of Wisconsin.

March 4th—"Biological Problems Involved in Erosion Control" by Dr. O. C. Bryan, U. of F.

April 1st—"Biology of Cave Crickets" by Dr. T. H. Hubbell, U. of F.

The spring initiation banquet is to be held at the White House Hotel on the evening of the twenty-first of March. Two faculty members and approximately fourteen Seniors and Graduates are expected to take the initiation.

Dr. M. W. Emmel of Theta Chapter who recently joined the Staff of the Florida Experiment Station located on the Campus of the University of Florida has become affiliated with Sigma Chapter.

Mr. F. H. Hull received his Ph. D. at Iowa State College last December and attended the A. A. A. S. meetings in Pittsburgh before returning to the University.

HOWARD K. WALLACE,
Secretary.

Tau

President—John F. Reed, Box 4188 Duke Station, Durham, North Carolina.

Vice-President—Reinard Harkema, Box 4374 Duke Station, Durham, North Carolina.

Secretary—Helen Spangler, Box 702 College Station, Durham, North Carolina.

Treasurer—Mr. B. B. Brendt, Zoology Dept., Durham, North Carolina.

Tau Chapter has thus far had quite a successful year. On December 11, 1934, fourteen new members were initiated and honored with a banquet. These were: John S. Rankin, Walter Hard, Paul Oltland, Wilbur Duncan, F. H. McCutcheon, F. T. Rowe, G. W. Wharton, B. C. Shrapnel, J. W. Wilson, John Stanbury, Sarah Culbreth, C. W. Henniger, Don Carrell, E. P. Hiatt.

Dr. J. B. Rhine of the psychology department gave a very interesting talk on "*A New Biological Preparation*". J. F. Reed officiated at the banquet and Dwight Billings was toastmaster.

Several talks by members of the chapter have featured the meetings of the year. Mr. K. C. Kates spoke on "*The Termite Enteron*"; Mr. J. S. Rankin on "*Pickeral Parasites*"; Mr. Wilbur H. Duncan on "*The Plants of the Great Smoky Mountains*" and Dr. H. L. Blomquist on "*The Ferns of North Carolina*".

Dr. Blomquist has finished his book on the "*Ferns of North Carolina*" and it has been published by the Duke University Press.

Dr. F. G. Hall of the zoology department has left for the Chilean Andes with the Harvard-Cambridge High Altitude Expedition. He will study the effects of high altitude on respiration.

Dr. C. G. Bookhout who received his degree last year has been teaching zoology at Eton College this year. We were very glad to welcome Miss Margarite Tiffin to our chapter this year. She is a transfer from Psi Chapter at the University of Washington.

J. F. Reed and Miss Mildred G. Stites, both members of Tau chapter, were married in Hopkinsville, Kentucky, on December 29, 1934.

The chapter is planning a two-day trip to Beaufort, North Carolina, to take place sometime this spring. This place should be very interesting to both the botanists and zoologists.

DWIGHT BILLINGS

Upsilon

President—Robert E. Radabaugh, 267 N. Miami, West Milton, Ohio.

Vice-President—James Phinney, 1520 E. Erie Avenue, Cleveland, Ohio.

Secretary—Wilfred Black, 215 Lima Avenue, Findlay, Ohio.

Treasurer—Lillian Beam, 1138 Dempble Avenue, Dayton, Ohio.

Upsilon Chapter of Miami University, Oxford, Ohio, has been having a very successful and progressive year. In November the Chapter sponsored its Annual Moving Picture which this year showed scenes which were of particular interest to the botanists, geologists, and zoologists. One of the highlights in the activities during the year was the Annual Initiation Banquet which was held in December. At this time 27 new members were brought into the Chapter. After the banquet Mr. Roger Conant, Curator of Reptiles at the Toledo Zoological Society, gave a most interesting illustrated lecture on the "Reptiles of Ohio."

Beginning with the new year a series of four talks was given by members of the Departments of Geology and Zoology on "A Faunal Cross Section of Southwestern Ohio." The talks which made up this

series were "Aerial Types," "Surface Forms," "Subterranean Animals," and "The Fossil Record."

In the forepart of March, 21 students accepted invitations to membership, and they will be initiated the latter part of March.

Two other talks by members of the faculty are being looked forward to with eagerness. These are "Alaska, the Land of Gold," and "The Influence of Training on the Human Mechanism." Throughout the year various members have given talks on experiences they have had in their respective fields.

Members of the Chapter are looking forward with the greatest anticipation to the Annual Field Trip which will be made in the middle of May. As yet, it has not been definitely decided where this trip will be made. Each year the Annual Field Trip brings to a completion the activities of Upsilon Chapter.

WILFRED BLACK,
Secretary.

Phi

President—W. Robert Eadie, Dept. Zoology, University of New Hampshire, Durham, New Hampshire.

Vice-President—Jane Slobodzian, Scott Hall, Durham, New Hampshire.

Secretary—Roger Brassard, Durham, New Hampshire.

Treasurer—Walter C. Baker, University of New Hampshire, Durham, New Hampshire.

Phi Chapter has had a busy and interesting year with a large number of meetings and chapter activities. Most of our meetings, except initiations, have been held as in the past, in the fraternity and sorority houses on the campus. The informal atmosphere, we believe, encourages interest and friendly discussion. The meetings are held every two weeks during the school year and more often during initiation season.

At our regular meetings, short talks or papers are given by the members on biological subjects of interest to the group. These may be in the form of descriptions of research the member is carrying on, or current events in the field of biology, or any other biological subject which is of interest to the members. A few of the titles may illustrate the nature of these meetings. Dr. Edwin Rasmussen of the Department of Horticulture, gave a short description of his work on the apple maggot. Mr. Nicholas Colovos of the Experiment Station de-

scribed work being carried on in the Experiment Station on the measurement of insensible perspiration as an indication of metabolism. A paper on current events dealt with the present status of work on anemia, particularly describing the work of Doctors Murphy and Minot. Professor C. F. Jackson, head of the Zoology Department, described briefly for us the results of his work on the mammals of New Hampshire. Miss Ellen Redden surveyed the status of medical social work at the present time, and Mr. Philip Wright gave us an interesting talk on "Starlings". An ecological paper on conditions faced by animal life was given by Mr. Marston Fenwick. Professor K. W. Woodward, head of the Department of Forestry, discussed "Game Management on University Lands". Mr. Walter Baker, a member of the Entomological Experiment Station, described the results of his work on the development of technique on impregnation of oil on eggs of insects. Miss Abbie Ford described current methods of immunization, and Mr. Herbert Gifford described the methods of treating the patients at the New Hampshire State Hospital for the Mentally Deficient. Experiments being conducted at the University Greenhouses on the effects of various chemicals on plant growth were described by Mr. George Joseph of the Department of Physiological Chemistry. Dr. Latimer of the Department of Horticulture, told of the methods employed in the production of new varieties of strawberries, and Dr. Dunn of the Department of Botany described recent discoveries in the field of plant breeding, particularly the work being done at the present time in Russia. Mr. James Conklin, Department of Entomology, described the menace of the Dutch Elm disease and the work that is being done on possible methods of control.

Every year Phi Chapter gives a prize of twenty-five dollars to the student ranking highest in the biological sciences. This year the prize was awarded to Arnold Rhodes, a student graduating from the Department of Forestry.

Concerning other chapter activities, in the fall we initiated thirteen new members: William Andberg, David Barton, Arline Brazel, Benjamin Bronstein, Harold Currier, Madeleine Davol, Lucretia Dodge, Marston Fenwick, Doris Goodwin, Sigrid Hargas, Mary McCarthy, Mary Tingley, and Philip Wright. Pledging was held on Mt. Agamenticus, a small mountain not far from Portsmouth.

The fall mountain trip was taken by the chapter over the weekend of November 3rd. The group made Camp Manning the headquarters

and took a cross-country hike to the foot of Mt. Belknap. The more hardy members climbed the mountain.

In the absence of our treasurer, Mr. L. C. Glover, who was working for his Ph. D. at Iowa, Mr. Walter C. Baker was elected to fill the office.

Phi Chapter had a sleigh ride this year with plenty of snow. January 23rd was the date chosen and about twenty members went on the ride to the Highland House in the worst snowstorm of the year.

Premedical Night was held February 20 in the Commons Organization Room. This, an open meeting, planned to be of special interest to premedical students. It also gives us a chance to meet many of the undergraduates who may later be considered for membership in Phi Sigma. This year the speakers were two of our graduates and former members of Phi Chapter. Dr. Ann Philbrick, a graduate of McGill University Medical School, and now associated with the New Hampshire State Hospital, and Dr. MacLean Gill, also a graduate of McGill University Medical School, and now with the Boston Children's Hospital, were the speakers.

Officers for next year and new members will be elected at the next meeting of the chapter, and we are looking forward to a pleasant spring term. About twenty of our present active membership of approximately fifty, expect to leave us this June. Several are planning on medical school next year, others are going on for advanced work, and still others are planning on work in biology at other institutions.

Phi Chapter suffered a serious loss this fall in the untimely death of Marjorie West Monroe. Mrs. Monroe was an active member of the chapter and for several years was an officer.

ALUMNI NEWS

C. C. Plummer (29) is Assistant Entomologist with the U. S. Bureau of Entomology, stationed at Cuernavaca, Mexico. He is engaged in research work on the Mexican fruit fly (*Anastrepha ludens* Lw.) His hobby is a taxonomic study of the family Membracidae. Two of his papers are now in the hands of the printer, and a third is to follow shortly.

G. L. Walker (32) is Research Entomologist for the A. D. Makepeace Company of Wareham, Mass., manufacturers of pyrethrum insecticides. He is stationed in Florida at present and is conducting field tests with pyrethrum insecticides.

B. G. Markos (34) is working towards his Masters degree at the University of New Hampshire. His thesis deals with the ovicidal properties of derris.

L. C. Glover spent the last six months at Iowa State University working towards his Ph. D. He completed his preliminary examinations in March and is now back in Durham where he will complete his work on his dissertation. Mr. Glover is developing a method for determining quantitatively the amount of arsenic in tissues of insects which have fed on plants sprayed with arsenical insecticides.

MacLean Gill has just started practice in Concord with Dr. Carl Dahlgren. Dr. Gill is specializing in children's diseases.

Dr. Ann Philbrick is physician at the New Hampshire State Hospital in Concord.

W. A. Chipman is with the U. S. Bureau of Fisheries. He is stationed at Columbia, Missouri.

RUTH E. THOMPSON,
Corresponding Secretary.

Chi

President—Frederick Parke.

Vice-President—Kathryn Lyon.

Secretary—Arthur Ferkin.

Treasurer—Winnifred Brewer.

Our meetings this year have been more interesting than ever before. We have had a series of discussions on all phases of cell respiration, both plant and animal. Not only have they been very interesting but also I feel sure everyone has gained much. This spring we intend to have each member give a resume of his thesis. Last fall we had the honor of having a movie shown to us by Dr. Chapman on "Wild Life of Glacier and Yellowstone Park". He has taken some very unusual pictures. These pictures were displayed from our own machine for which we hope soon to obtain several color lens. In the spring we shall sponsor more movies on the subject of "Health".

As usual this year Phi Sigma will have charge of the display during High School Week in the departments of Entomology, Zoology, Botany, and Bacteriology. We also serve a dinner at this time to visiting high school students. Speaking of dinners perhaps the banquet which we serve each fall previous to initiations would be of interest to you. Have you ever seen a perfectly browned turkey emerge from a dry

sterilizer, or giblet gravy boiling merrily in a beaker over a bunsen burner? It is an unusual sight but each fall just that happens for this banquet. We are really proud of the food we turn out—scientifically one might almost say. The work on the rock garden which Phi Sigma is sponsoring on this campus is progressing. Our hope is that in a few years it will be one of the beauty spots of the campus. Cat-tails, wriggly water bugs, unusual bushes and trees thriving in damp places, water lilies, and varieties of rocks all these collected from Gallatin valley already make this a spot of beauty as well as scientific interest.

We are proud, too, of the fact that so many of our graduate class of last year are either out working or taking post graduate work. Two of them are teaching, four are scattered here and there over the west taking post graduate work, one in California, another in Nebraska, and at other places. Others are working here at the College or in interesting county agent work over the state.

This spring we are planning our annual Phi Sigma picnic. All faculty members, active members, and prospective members are invited. We clamber into cars and go to one of the many beautiful spots in the Rocky Mountains that are so near Bozeman. Always there is a baseball game, plenty to eat, and no real responsibilities. We feel that the old adage "All work and no play, makes Jack a dull boy" has more truth than poetry in it.

To end, I might add that "The Biologist" met with great approval in this group this time. Everyone enjoyed it so much and I might go further to say that they wished that there were more on the same order.

Sincerely,

EDITH JOHNSON,

Secretary.

Psi

President—Robert Tschudy, Dept. Botany, University of Washington, Seattle, Washington.

Vice-President—Harriet Exline, Dept. Zoology, University of Washington, Seattle, Washington.

Secretary—Herbert Reiter, Dept. of Bacteriology, University of Washington, Seattle, Washington.

Treasurer—Charles Schwartz, College of Pharmacy, University of Washington, Seattle Washington.

Psi chapter has really accomplished something worth while, as far as government of the local chapter is concerned, by adopting a set of

chapter by-laws. Having heard it intimated that the National Council is not entirely in sympathy with individual chapter by-laws, I am taking this means of defending our action, and of presenting the reasons for and results of the adoption.

The primary reason for the adoption was that a few self-appointed members would constitute themselves a committee to restrict membership on purely personal basis. The National Constitution specifically states that the election of new members shall be by secret ballot, so we could not require that a member give a reason for black-balling a prospective member. On searching for the cause of the trouble, we found that oftentimes these personal prejudices were based on hearsay, petty personal qualities, or lack of knowledge of the candidate and his qualifications. Consequently we wrote in this most important part of our by-laws as follows:

“Section 2.

1. A subcommittee to the regular membership committee shall be formed which shall consist of one member from each department in the field of biology. This committee shall be responsible to the regular membership committee.

2. The duties of each member of the subcommittee shall be to procure from every faculty member in his department, and from any other available source, the names of all candidates in his department. These names shall be turned over to the regular membership committee to be checked with the registrar for grade requirements. The subcommittee shall obtain for all the remaining candidates who satisfy the grade requirements a written statement which shall include: a statement of the candidate's year in school, a statement of how long he has been in residence in the University of Washington, the character of his research work, and the length of time that he has been pursuing such work. It shall also include any statements concerning his ability as may come from faculty members of the department concerned. This report shall be presented to the membership committee.”

The result of this move has surpassed our greatest expectations. The election of new members has evolved from a disorderly long-drawn-out debate, to a short orderly presentation of each name with the facts stating his qualifications. The secret ballot is then taken after all facts have been presented. We have tried this at two elections, and offer it in itself—as an adequate reason—or defense for chapter by-laws.

The chapter itself has enjoyed a very good year. Following a suggestion, this year we tried the plan of having all the meetings of the year

unified. At first it was decided to have a different topic each quarter, but the topic "Recent Advances in Medicine" found so much favor with the members that it was continued through the year.

The first two meetings of this administration, before the idea was put into effect, were first: a talk by Dr. Norris on "Recent Advances in Biochemistry," second: Dr. Meany, pioneer and professor of Northwest History discoursed after our spring initiation banquet on, "Biological Pioneers and Pioneering" in the Northwest.

Our schedule of Doctors speaking on the general topic of "Recent Advancements in Medicine" follows:

Dr. Nixon—"Recent Advances in the treatment of Cancer."

Dr. Wheelon—"Sugar Metabolism."

Dr. Schlyfield—"Artificial Pneumothorax for the Treatment of Tuberculosis."

Dr. Cephalu—Arranged for an autopsy.

Dr. Nicholson—Alienist, "Some Aspects of Mental Diseases."

Besides these we had a Christmas social meeting and initiation of new members. Dr. Goodrich of the Pharmacy department gave the welcoming address. Instead of a regular meeting in February, Psi chapter of Phi Sigma together with Rho Chi, Pharmacy Honorary, Pi Mu Chi, Pre Medical Honorary, and Sigma Epsilon, Women's Medical Honorary, brought the motion picture "The Life of Leeuwenhoek" to the Campus. No admission was charged.

In conclusion may I extend this personal wish to all members of all chapters of Phi Sigma, that they become "curiosers" and "curiosers" about things biological, and help push the outskirts of known knowledge far into what is now the unknown.

ROBERT H. TSCHUDY,
President.

Omega

President—Charles C. Smith.

Vice-President—T. Teague Self.

Secretary—Wilda M. Fritts.

Treasurer—O'Reilly Sandoz.

Omega Chapter has within the last year held some interesting and beneficial meetings. The first meeting, October 3, was in the nature of a business meeting. A vice president was elected, and at the resignation of the treasurer and president those two offices were filled. The

second Tuesday evening of each month was selected as a meeting time for the regular meetings of the chapter. At this meeting the chapter planned for the election of new members, and discussed other business matters.

October 23, the chapter met at the home of Dr. and Mrs. A. I. Ortenburger, where new members were elected. These were Norman Boke, Arthur N. Bragg, James H. Bragg, A. Louis Buell, Jack E. Engleman, Paul L. Gettsoff, Cynthia C. Gragg, R. Frank Hedges, Julian A. Howard, Richard F. Mason, Jay E. McCormick, Lila M. Middleton, Paul G. Phillips, William H. Shofstall, William S. Strain, Robert Taylor, and Ina Jean Venable. Plans were made at this meeting for the initiation banquet.

November 21, the fall initiation and banquet were held in the Student Union Building. The following members were initiated: Arthur N. Bragg, James H. Bragg, A. Louis Buell, Jack E. Engleman, Paul L. Gettsoff, Cynthia C. Gragg, R. Frank Hedges, Julian A. Howard, Robert L. Howard, Jay E. McCormick, Paul G. Phillips, Viola Pitmann Russel, William H. Shofstall, William S. Strain, and Robert Taylor. The initiation banquet followed the initiation ceremony in the Union Ballroom, where the members of the chapter heard Dr. C. N. Gould speak on "Biology in Oklahoma Place Names."

At Christmas time the chapter met at the home of Dr. and Mrs. Aute Richards for a Christmas party. Games, contests and songs were the main activities of the evening.

An outstanding and unusual meeting of the year was that of January 15, at which Mr. E. N. Comfort, Head of the School of Religion, spoke on "The Relation of Biology and Religion." A round table discussion followed the lecture. Announcement of the expected visit of Dr. H. C. Overholser of the United States Biological Survey to the Oklahoma University Campus was made at that time. The chapter voted to sponsor a Biology Round-up to be held at the time of his visit to the campus, and tentative plans were made for such a round-up.

February 13, the chapter met to hear Mr. George R. Phillips, State Forester, speak on "The United States Shelter Belt." Members of the chapter enjoyed the lecture very much, and were enlightened concerning the enterprise. Oklahoma's part in the shelter belt project as pointed out by Mr. Phillips added greatly to the importance of the meeting. Following the lecture there was a brief business meeting for the nomination of officers to be elected at the March meeting.

The last three meetings of the chapter were business meetings. There were reports from the program committee concerning the Round-up to be held in April. The chapter made plans for discussion groups on Anatomy and Morphology; Taxonomy and Ecology; Genetics and Cytology; and Physiology. Following the discussions there is to be a luncheon at noon followed by general discussions in the afternoon and a tour of exhibits. The final activities of the Round-up are to be the initiation of new members and the initiation banquet. The Omega Chapter is extending an invitation to the Stillwater chapter of Phi Sigma for the Round-up and initiation program.

Following the discussions of the Round-up the following new members were elected: Neva Grace Howes, Ralph Stewart Phelan, Mary Connor, Max E. Johnson, Martin Solnick, Wilson Mahone, Joseph Daniel Mitchell, Mildred Rose Pool, Floy Lorraine Paxton, Henry Brown Walter. It was voted by the chapter that these new members should during their first year as members of Phi Sigma present a paper before the chapter. The object in mind was the stimulation of research on the part of the members of the chapter.

Following the election of new members, the new officers were elected. They were: President, James Bragg; Vice-President, O'Reilly Sandoz; Secretary, Wilda Fritts; and Treasurer, Paul Phillips.

At the present time Omega Chapter is concentrating its efforts on the Round-up to be held here April 6. The Round-up will be one of the high spots of the year. The program committee is planning a variety of activities in the nature of scientific discussions, visits to the Science Departments of the University, and a luncheon and banquet. The program committee is sending invitations to all Phi Sigma members of the state, including the Stillwater Chapter. Following the Round-up, the chapter plans to initiate its new members. Following the initiation the banquet will be held, with Dr. Overholser as the main speaker of the evening. Phi Sigma members from over the state are being invited to attend the banquet and initiation.

There is a marked tendency here at the present time for certain members of the chapter to emphasize research on the part of both old and new members. There seems also to be increased interest in the activities of the chapter, which is very encouraging to the officers and members of the chapter as a whole.

GRADUATING STUDENTS AND RESEARCH PROBLEMS

Following are the names of those students who will graduate in June, with the titles of their research problems. Those to receive Ph. D.

Degrees are: Ethyl Derrick, "Analysis of the Early Development of the Chick by means of the Mitotic Index;" Harold Hefley, "Ecology of the Flood Plain of the Canadian River;" Ruth Holzapfel, "The Physiology of Hibernation." Paul Phillips is to receive an M. S. Degree. His research problem is "Rodent Distribution in Normal and Overgrazed Grasslands."

SCIENTIFIC ACHIEVEMENTS OF THE YEAR 1934-1935

Richard Carpenter, a student in Ecology, has recently won a Rhodes Scholarship and leaves for England at the end of the summer term. In addition to this he has in print the following papers: "Diurnal fluctuations in the communities adjoining the forest edges near Urbana, Illinois," *Proc. Acad. Sci.* 14; 29-31; "Forest edge birds and exposures of their habits." *Wilson Bulletin*; "Fluctuations in biotic communities, I. Prairie-forest ecotone of central Illinois. *Ecology* 16 (2);" "Aspection in an Illinois forest community," *Proc. Okla. Acad. Sci.* vol. 15; "Some observations on the number and size of samplings necessary to make an adequate sampling of a prairie biotic community;" "Some unusual mitotic and meiotic stages in *Ascaris megalocaphala bivalens*. *Proc. Acad. Sci.* (15) (abstract). "Plant Distribution in a central Oklahoma prairie with some notes on methodology and sampling." *Pub. Univ. Okla. Biol. Serv.* 6. "Diurnal fluctuations in insect populations in the prairie-forest scotone of North America. To be read before the twelfth Int. Zoo. Congr. Sept. 1935. Mr. Carpenter also has in preparation, "A glossary of terms used in Ecology and related Sciences". Compiled by Carpenter and edited by Dr. A. O. Weese.

Harold M. Hefley besides work on his thesis as stated above has two recent papers in print. They are:

1934 Preliminary studies on the Parasite fauna of Oklahoma Anurans. *Proc. Okla. Acad. Sci.* Vol. 15. 1935. A new Mite from the common skunk; *Mohitis Nigra*. *Journ. Kans. Ent. Soc.*

Frank Hedges is now studying the Distribution of Mollusea remains in soil deposits of Central Okla.

Dr. Paul B. Sears studies of pollen statistics are receiving interest throughout the country. He has had a number of requests to assist in dating Prehistoric cultures by methods of pollen analysis. His recent paper on Glacial and Postglacial Vegetation appeared in the *Botanical Review* for February. In July his paper on Types of North American Pollen Profiles will appear in the *Ecology*. Dr. Sears will be a member

of the faculty of the Wyoming Summer Camp, Medicine Bow Mountains, this summer where he will conduct field work in botany.

Dr. Goodman has written a taxonomic paper on the desert growth of the Buckwheat family which appeared in the *Annals of the Missouri Botanical Gardens*.

Dr. Richards will remain here during the summer term, and will spend the remainder of the summer at Woods Hole. Dr. Richards has had several papers published within the last year. Most of these are on the use of the mitotic index in the analysis of the early development of fish embryos. He has also a paper on the cleavage of hatching snail eggs.

A. H. Trowbridge and other workers have contributed the following papers: "New records of the Invertebrates of Oklahoma." *Proc. Okla. Acad. Sci.* vol. 15, 1935. Trowbridge and Stambaugh. "Some observations on birds in Southeastern Oklahoma." *Wilson Bulletin* XLVI. Trowbridge and Whitaker. "Preliminary studies on the parasitic fauna of the Oklahoma Anurans." *Proc. Acad. Sci.* vol. 14. Trowbridge and Hefley. "Seasonal and gonadal activity of the English Sparrow." Christia Allender. "Cytological studies on the seasonal activity of the English Sparrow." Christia Allender.

Dr. and Mrs. Ortenburger have completed work on the reptiles and amphibians of Oklahoma. The title of the publication is: "2500 Reptiles and Amphibians identified in Oklahoma." *Biological Survey* 1933. Dr. Ortenburger is directing Mr. Solnick in his research on "Malarian ducts and ureters in Anurans." Mr. Solnick is one of the recent pledges of Omega chapter and, according to Dr. Ortenburger, is doing good research work.

Dr. Ortenburger will offer courses at Indiana University on invertebrate and vertebrate Zoology this summer. He will also direct research in these fields.

COMMENTS FROM OMEGA CHAPTER CONCERNING THE "BIOLOGIST"

J. Richard Carpenter sends the following comment: "It is my opinion that the 'Biologist' might well be used as a clearing house for the minor research problems being carried out by the members of Phi Sigma. Many of the Bachelor's theses and term papers which nearly every member of Phi Sigma is doing or has done in the past are well worth publication, but the larger journals are already overcrowded and notes of this sort are usually not important enough to warrant publication there. Short abstracts of the larger papers of Phi Sigma members might also well be published in the 'Biologist.' In so doing the

research of the younger members of the organization would be encouraged and many well worthwhile things brought to the attention of other scientific workers. In addition, Phi Sigma members would be better informed as to what their fellow members are doing and the fraternal spirit of the organization would be greatly furthered."

Many members of the chapter have expressed a liking for the new cover of the "Biologist." Most of them feel that it is a decided improvement over the old cover. Most members are in favor of the inclusion of papers from the individuals doing research in the various chapters. This, however, is only a suggestion of possible improvement.

WILDA M. FRITTS,
Secretary.

Alpha Alpha

President—Lucien Bavetta.

Vice-President—Frien Reid.

Recording Secretary—Dolores Bullock.

Corresponding Secretary—Elizabeth Eason.

Treasurer—Herbert S. Baker.

In February, the Alpha Alpha chapter of Phi Sigma held its regular winter initiation followed by a banquet. The speaker of the evening was Mr. E. H. Myers who spoke on "Foraminifera in the Role of World Builders."

At the January meeting the newly elected members, who were to be initiated in February, were asked to give a short talk on their research problem or work in which they were interested.

Mr. Carlton Ball spoke on his interest in Plant Ecology and his idea of combining Botany and Art for high school students.

Mr. Harry Blunden of the Biochemistry Dept. told of helping to set up a plant at U. S. C. for the purpose of producing heavy water.

Miss Frances Cramer told of her independent study of the Embryological Development of the Retina of the Horse Eye. For comparative study she used the eye of the cat, the calf, the shark, and the fish. She had microscope and slides with her for demonstration.

Mr. Paul J. Freed spoke of his interest in bird life. Jack Miner's Bird Sanctuary in Kingsville, Ontario, he has watched with especial interest—its growth and its many interesting experiences.

Mr. Joel S. Goodman told of his research work on Marine Algae in the vicinity of Palos Verdes Hills, near Los Angeles. For his study he

has found very useful a home-constructed skiff and glass-bottom boxes.

Miss Ada Hathaway's talk was on her research work—Microscopic Study of the Shells of Foraminifera. Last summer on a trip to Europe she collected at the following ports: Algiers, Gibraltar, Southampton, Rome, Genoa, Cadiz, Madiera, Gotenburg, Copenhagen, and Monte Carlo.

Mr. Ralph Strinz spoke on The Valley Carpenter Bee. He had specimens of the bees and also sections of telephone poles containing their burrows.

Mr. Francis Elmore told of his trip to Hawaii and displayed various and sundry articles which he had collected while on this trip.

At the conclusion of Mr. Elmore's talk the meeting continued informally. The displays were examined; new members were greeted by and made acquainted with the old members. The fact that all lingered long and interestedly proved that it was an enjoyable meeting.

At the A. A. A. meeting last summer in Berkeley, Phi Sigma was well represented. Several members presented papers, among whom were:

Miss Delores Bullock—"Atriplex semibaccata R. Br. as influenced by certain environmental conditions."

Mr. Peter J. Rempel—"Some phytogeographic features of the Colorado Desert" and "The crescentic dunes of Salton Sink and their relations to plant ecology."

Dr. Purser—"Vegetation of Silver Strand Beach State Park."

Dr. G. R. Johnstone—"Observations on Gelidium cartilagineum" (read this paper which was prepared by Miss Leta Wells.)

Miss Pearl Shewman—"Embryological Development of Hypophysis of the Horse."

A splendid spirit exists among Phi Sigma members and in the Society. Our faculty sponsor, Mrs. Tema Clare, and other faculty members are always kind and gracious. As one faculty member replied when approached concerning some matter pertaining to Phi Sigma, "I'd do anything for Phi Sigma". That seems to be the feeling in general—in an institution of higher learning that spirit is greatly appreciated by the students.

ELIZABETH EASON,
Secretary.

Alpha Beta

President—Joel E. Davis, Cedar Street, East Canton, Ohio.

Corresponding Secretary—Margaret Knowles, 380 Vincent Blvd., Alliance, Ohio.

Recording Secretary—Hazel L. Johnson, Elliott Hall, Mount Union College, Alliance, Ohio.

Treasurer—E. Edgar Cassaday, 1205 Analon, Alliance, Ohio.

You will be interested to know that Phi Sigma has been very active on the Mount Union campus this year, and that membership has been expanded by the addition of thirty one initiates. The first initiation was held November 15th, at which time the following became active: Eugene Benedetto, Clarella Crovick, Warren Curtis, Robert Moffeh, Harriet Norton, Marjorie Pattison, Eldon Rowland, Gus Shcheen, Lawson Smart, Kathryn Sutherin, and Jess Varner.

A second initiation was held February 28th at which time twenty were received into membership: Lewis Ailes, Robert Funolow, Homer Briggie, Roy Finefrock, Howard Hughmanic, Selma Seibschner, John Hawkins, Grace Bieri, Alan Donaldson, Arthur Cole, William White, John Bennett, Eleanor Munson, Lewis McCord, Alice John, William Owens, William Thacker, Edward Waisbrot, Doris Cline, and Mary Hunter.

We have meetings on the average of twice a month, following the plan of having speakers only former members of Phi Sigma. This has resulted in a number of very interesting and informative lectures, for our guest speakers have all been authorities in their fields. The first alumni to address us was Dr. Henry Bradshaw, who is at present a medical missionary in Korea. From ancient medical histories he had found there, and from recent investigations, he discussed the primitive uses of ephedrine as a drug, and the prominence it now has for treatment of allergic diseases. Our second guest speaker was Dr. Carl Johnson, a medical research worker in parasitology, with special emphasis on amallusis. Miss Helen Marie Stewart was the next to present a paper, this time an accurate account of the meeting which she attended in Pittsburgh for the "American Association" for the Advancement of Science. Miss Stewart, who graduated from Mount Union in 1933 is at present retained as a professor of Biology and Physiology.

Another woman to address the group was Dr. Esther Mauer, a specialist for the Molly Stark Tubercular Sanatorium, who explained all the recent work on "The Common Cold". Last in the series of talks by alumni was an account of "The Phyloglusic Tree" by Everett Chandler.

a Biology teacher in West Virginia. To stimulate interest in these reports, most meetings were open to the students in several of the biological departments. This plan will be continued for the rest of the year, as we anticipate several more guest speakers who were formerly affiliated with Phi Sigma. Our next two speakers are to be Dr. Kay Leilier, a home specialist in Canton, who will explain "Regeneration of Tissues", and Dr. O. G. Wilson, who will discuss the activities and diseases of the heart.

Of our members who will graduate, Edgar Cassidy has already been accepted at Harvard Medical School, and our president Joel Davis, has been accepted at Rochester, Gus Shaheen, John Hawkins, John Berneh, Eugene Bendetto, and Edward Waislot are also planning to go to Medical school, but they have not announced which school they will attend. Of the remaining graduating members, Jess Varner, Lawson Smart, Hazel Johnson, Harriet Norton, and Mary Fitch plan to teach Biology.

MARJORIE PATTERSON,
Secretary.

Alpha Delta

President—Elizabeth Kolter, Russell Sage Hall, Appleton, Wisconsin.

Vice-President—Ruth Nelson, Appleton, Wisconsin.

Secretary—Austin Schlosser, Brokan Hall, Appleton, Wisconsin.

Treasurer—Doris Boettcher.

Alpha Delta chapter at Lawrence College recently initiated two new members from the Junior Class. They are Ruth Nelson and Doris Boettcher.

An announcement was published in the college paper of a fifty dollar prize to be offered this spring by the Alpha Delta chapter of Phi Sigma to some student enrolled at Lawrence who has carried out the best piece of research work during the current academic year. Any student majoring in science is eligible for competition.

We have had as our principal speakers this year a Research Associate from the Institute of Paper Chemistry which is situated here in Appleton and a practicing physician and surgeon from this locality.

At the present time the officers of this chapter are:

President—Elizabeth Kolter.

Vice President—Ruth Nelson.

Secretary—Austin Schlosser.

Treasurer—Doris Boettcher.

Alpha Delta chapter here wishes to extend a hearty welcome to the Alpha Nu chapter at the University of New Mexico.

AUSTIN SCHLOSSER,
Secretary.

Alpha Epsilon

President—Mrs. K. Gilmore Speicher, Dept. Biology, Pennsylvania College For Women, Pittsburgh, Pennsylvania.

Vice-President—Harold A. Bruce, Dept. Zoology, University of Pittsburgh, Pittsburgh, Pennsylvania.

Secretary—Henry J. Idzkowsky, Dept. Zoology, University of Pittsburgh, Pittsburgh, Pennsylvania.

Treasurer—Richard V. Morrissey, Dept. Botany, University of Pittsburgh, Pittsburgh, Pennsylvania.

This News Letter is an attempt to cover the salient features of Alpha Epsilon Chapter's activities for the academic year 1934-35.

The Chapter's scholar for 1934 was Mr. Roland Miller. Mr. Miller used the scholarship to further his study of the prostate-thyroid relationship in the albino rat at the Wood's Hole Laboratories.

Our meetings for the season, six in number thus far, have been highly varied and interesting. Dr. Wallgren opened the season's program with a talk entitled "Microbiology". The sequence of the remainder of the program was as follows: Dr. A. Avinoff, "International Cooperation in Science"; Dr. Walter H. Wright, "Missing Teeth! What Then?"; Mr. Graham Netting, "Barro—Colorado Island, Panama"; Initiation Banquet, address to the Neophytes—Dr. John C. Donaldson, "Fact and Fancy"; and the last, a seminar-type program, was comprised of four talks: Dr. Emig, "Megagametophyte of Pinus"; Mr. Edward Claus, "A Microscopical Study of Some Plant Drugs"; Mr. George Taylor, "Tumor in a Dog; a Case Report" and Mr. Earl B. Scott, "About Hayfever".

Members of the Chapter who have taken degrees during the year are:

Doctor of Philosophy degree:

Betty Watt Brooks. The Fossil plants of the Fayette Formation, Snake River Basin, Idaho, with Reference to Their Distribution.

Pressley L. Crummy. Some Effects of X-Radiation on Regeneration in the Newt, *Triturus viridescens viridescens* (Raf.)

Eugene Cutuly. Some Effects of Hypophysectomy on the Adrenal Glands of Adult Albino Rats.

Raymond J. Greb. Studies on Mosaics of *Habrobracon*.

J. Loraine Jones. Integument and Integumental Glands of the Amphibian, *Triturus viridescens viridescens* (Raf.)

Ruth Shaw Kelly. The Trematode Parasites of *Triturus viridescens viridescens* (Raf.)

Richard Vincent Morrissey. Ecological Morphology and Anatomy of Certain Vascular Plants of Presque Isle, Erie, Pennsylvania.

Mabel B. Rome. An Anatomical Study of *Nepeta Hederacea*.

Kathryn Gilmore Speicher. Impaternate Females in *Habrobracon*.

Walter R. Sweadner. Hybridization and the Phylogeny of the Genus *Platysamia*.

Walter H. Wright. Growth and Differentiation of Larval Grafts on the Adult Newt, *Triturus viridescens viridescens* (Raf.)

Master of Science degree:

W. Glenn Burig, Lawrence B. Derickson, F. Jane Maxwell, Elizabeth E. McKinniss, William F. Starkey, Earl B. Scott, Roland Miller, Leonard N. Wolf.

Thirteen new members were initiated on Feb. 15, 1935; twelve active members and one faculty member, Dr. Walter H. Wright from the School of Dentistry.

HENRY IDZKOWSKY,
Secretary.

Alpha Zeta

President—J. O. Manley, Phi Kappa Tau House, Williamsburg, Va.

Vice-President—Joseph Pollard, General Delivery, Williamsburg, Virginia.

Secretary—Ruth Engel, General Delivery, Williamsburg, Virginia.

Treasurer—Marguerite Staibling, Phi Mu House, Williamsburg, Virginia.

Alpha Zeta Chapter of Phi Sigma will soon welcome into membership eight new members, bringing the total number of initiates in the chapter up to thirty. Our initiation will take place Monday evening, May 6th at our annual banquet. The new members are: Calton Casey, George Pitts, Fred Eidsness, Carol Gouldman, Jane Thornburgh, Sally Reed, Paul Lambert and Esther Blanchard.

Elizebeth Burger is working on the "black widow" spider, *Latrodectus muctans* which is very prevalent in this section of the state. The problem has the following divisions:

1. Morphology of the poison apparatus.

2. Histological study of the effect of the poison upon nervous tissue of small mammals.

3. Incidence of cases of spider poisoning in Virginia.

She will appreciate any material or information on the subject which you might send to her. Arthur Rich is making a general study of Chemotopism on Insects. This study consists of testing as bait in fieldtraps a series of volatile organic compounds, and, the testing of extracts from the elm tree on the elm-leaf beetles in an insect Olfactometer.

We hope that the next year will be more profitable and enjoyable for Alpha Zeta, and that the new officers will take as much joy in doing their work as the outgoing officers have.

May I take this time to tell you that the Biologist has been received by Alpha Zeta with much favorable comment. We think it is by far the best issue published, and we hope it will continue on in this manner. I might add that we are very proud of it, and wish you the best of luck.

RUTH ENGEL,
Secretary.

Alpha Eta

President—J. F. Wood, Dept. Zoology, Oklahoma A. & M. College, Stillwater, Oklahoma.

Vice-President—Jesse Murrell, Agriculture Dept., Oklahoma A. & M. College, Stillwater, Oklahoma.

Secretary—Earl Pritchard, Entomology Dept., Oklahoma A. & M. College, Stillwater, Oklahoma.

Treasurer—Robert Moore, Agriculture Dept., Oklahoma A. & M. College, Stillwater, Oklahoma.

My machine is out of whack—due to some northern dust that has been drifting into Oklahoma—from Montana I believe they claim. It is estimated to be worth a Billion Dollars to the State. However, if you could arrange it through “Chi” chapter they can have the dust and will settle for 50 cents on the Dollar.

Fair enough, I call it.—

You ask for the reception of the current BIOLOGIST. As you undoubtedly know it takes a good magazine to attract a student. To say you have succeeded is putting it mildly. The members are of the unanimous opinion that it is a success and by far the best issue in recent years—and we recommend continued publication along these lines. Your remark that it was loaded is true but we like it. We can read everyday opinions, and hear them anytime a session gets under way.

Give us more new and different articles so we can discuss them. In my house, even the Business Administration Majors have read it from cover to cover. Before it has been only slightly noticed.

The Alpha Eta Chapter also heartily approves of the expansion movement—but hasten to add—we hope Phi Sigma expands cautiously and conscientiously.

Chapter news is scarce right now—at meeting tonight we entertained 12 prospective pledges—of which we hope to pledge at least 8. Our requirements are slightly above other organizations which cuts down the eligibles somewhat though it makes for a much better chapter. Our present staff of officers have worked unceasingly in our efforts to build Phi Sigma up on the campus and I believe we have succeeded to a considerable extent. My presidency has caused some conflict with certain faculty members which has retarded our progress somewhat. I have suggested my resignation several times during the last two years but it was repeatedly turned down—so I made the best of things as they were—I find complete harmony with the faculty is “at opia” seldom approached. I graduate this year however, so maybe Phi Sigma will be more prosperous in “35” and “36”.

Outgoing officers are: President, J. F. Wood; Vice President, Felix Adams; Sec.-Treas., Earl Pritchard. Officers for next year are: President, Earl Pritchard; Vice President, Marion Spore; Sec.-Treas., Mary Louise Stout.

Spring initiations and Banquet will be held April 15. Dr. Richards from Oklahoma University will be the speaker.

J. F. Wood,
President.

Alpha Theta

President—Otto Schnellhardt, 610 Linden, Pullman, Washington.

Vice-President—E. I. Robertson, Poultry Dept., State Coll. Wash., Pullman, Washington.

Secretary—Harley English, College Station, Pullman, Washington.

Treasurer—Clarence Seely, 507 Colorado St., Pullman, Washington.

On January 25, eight neophytes were initiated into membership in Alpha Theta chapter. The new members are: Miss Belle Wenz, professor of pharmacy; Harry Katznelson, graduate in Soils; Miss Wilma Huddleson, Botany; Lyle Tompkins, graduate in Horticulture; Forrest Bernath, Forestry; Joe Keizer, Horticulture; Dwight Forsyth, Botany;

and Harris Pasley, Bacteriology. The initiation was followed by a well attended banquet, at which Dr. R. L. Webster spoke on, "The Warfare on Insects." Also, each initiate presented a short, humorous, research topic.

One of the projects of Alpha Theta chapter during the past semester has been the sponsoring of the Natural History Club on the Washington State College campus. Some topics of especial interest given by our members were: "Grasshopper Habits," Irvin Bales; "A Journey Through Missouri," Winton Young; "Insects and Instincts," Dr. R. L. Webster; and "Indians of Montana," Lewis Allison.

In conjunction with Sigma Xi we secured and presented on two different occasions the "Leeuwenhoek Film." The early development of the microscope and the activities of various organisms were shown on the screen. Capacity crowds attended both presentations.

At a recent meeting of Alpha Theta chapter the following officers for next year were elected: Harley English, president, Dwight Forsyth, Vice President; Wilma Hudleson, Secretary; and Harry Katznelson, Treasurer.

Candidates for the Master of Science degree and their thesis subjects are as follows: Leonard Bond, Soils, "Effect of Fertilizers and Soil Types on the Composition of Alfalfa;" Oliver Leonard, Botany, "Translocation of Organic Solutes in Sunflower Plants;" Otto Schnellhardt, Plant Pathology, "Investigations on the Gray-Mold Decay of Apples Caused by Botrytis Spp. of the Cinerea Type;" Clarence Seely, Agronomy, "Factors Limiting the Yield of Spring Wheat in the Palouse Area;" Winton Young, Horticulture, "Effect of Mineral Oils and Fish Oils on the Carbon Dioxide Intake of Apple Leaves."

The following members will receive their Bachelor of Science degree this June: Irvin Bales, Zoology; Forrest Bernath, Botany; Harley English, Plant Pathology; Dwight Forsyth, Botany; Melvin Helander, Botany; Wilma Hudleson, Botany; Joe Keizer, Horticulture; and Harris Pasley, Bacteriology. Carl Jones will receive his D. V. M. degree at the same time.

We have enjoyed reading the fall-winter "Biologist" immensely. All of the faculty and active members to whom I have talked commented favorably on this issue. It seems to have more spice and variety than usual, and I think it a very excellent number.

Fraternally yours,

HARLEY ENGLISH,

Secretary.

Alpha Iota

President—Kathryn Stannert, Women's Bldg., Bucknell University, Lewisburg, Pennsylvania.

Vice-President—Naomi Heritage, Women's Bldg., Bucknell University, Lewisburg, Pennsylvania.

Secretary and Treasurer—Lorraine Powell, Women's Bldg., Bucknell University, Lewisburg, Pennsylvania.

We have been confronted by a handicap at Bucknell these last two years, due to the new method of Curriculum planning. For these two years all Frosh and Sophomores have been required to take all required work—only in their Senior and Junior years can they elect their courses. This has, of necessity, cut down their hours—especially in Biology. Thus, it has only been within this last semester that Alpha Iota has begun to be actually active.

Up to date we have had two meetings a month, and papers have been presented at these meetings by those requesting membership into the organization. Last week we had an excellent report on the "Colon-Aerogenes" group of bacteria. Two students are working on this group in order to try and discover some really adequate diagnostic media to differentiate between C-Coli and A. Aerogenes.

Other prospective members are planning to work on human radiations and how they effect bacteria, parasite protozoa.

LORRAINE R. POWELL,
Secretary and Treasurer.

Alpha Kappa

President—Margery J. Greene.

Vice-President—Leonore Sabin.

Chapter Secretary—Filomena M. Greco.

Treasurer—Mildred Schwieger.

The meetings this year started off in October with a field trip conducted by Dr. Dorothy Meier. Dr. Howard C. Curran, assistant Entomologist of the American Museum of Natural History, gave a very worthwhile talk on insect life at the following meeting. Miss Cecilia Fortmuller next talked on her investigations at Columbia University which concerns the utilization of nitrates and ammonium nitrogen by plants. Our initiation address was given by Miss Theodora Nelson in January. Miss Nelson discussed recent researches in Ornithology which dealt mainly with the recent literature. Miss Nelson, who is an in-

structor as well as a research worker at the Michigan Biological Station every summer, showed some films on the nesting of the Spotted Sandpiper that were taken there, as well as films showing the type of work and field trips that are conducted at the station.

The initiates were the Misses Rhoda Frank, Miriam Kadushin, Dinah Marmer, Fanny Spector, and Dr. Dorothy Meier. With the exception of Dr. Meier who instructs at Hunter College, all are graduates of the class of January, 1935.

At the February meeting the initiates of June, 1934, organized a program on their researches accomplished thus far. Miss Julia Bloodstein was Chairman. Of the talks Miss Leonore Sabin gave a most interesting one on "Sex Determination and Differentiation."

Miss Margery Greene who has been doing graduate work at the Harvard Biological Institute this past fall will tell us of her researches on Caddis larvae at the March meeting. Miss Greene will emphasize a section of a collaborated paper which is to appear in the June issue of the Entomological Journal "Psyche" and is part of her doctorate thesis which she expects to work on this summer at Harvard.

At the A. A. A. S. meetings in Pittsburg Mrs. Theodora Nussmann Salmon delivered two papers before the Psychology Section.

1. "Genetics of Sensory Thresholds: Differences in Individuals in Sensitivity to P.T.C." Salmon & Blakslee.
2. "Genetics of Sensory Thresholds: Individual Reactions to Different Substances." Salmon & Blakslee.

MARGERY J. GREENE,
Chapter Secretary.

Alpha Lambda

President—Don Grayor.
Vice-President—Perry Plummer.
Secretary—Estelle Calderwood.
Treasurer—Harold Norton.

Alpha Lambda Chapter of Phi Sigma has followed the customary plan of bi-monthly meetings during the present school year. Our programs have been varied and stimulating. At our opening meeting in October, Professor W. W. Newby, who spent last year in research work at Stanford University, talked informally upon the subject, "Biological Research at Stanford University".

On October 31, Dr. J. Claude Brown addressed the chapter upon the subject, "Fresh Water Polyzoa". Dr. Brown has done considerable research in this field, chiefly at the University of Michigan, and his discussion was clear and illuminating.

Mr. Harold Austin, of the Bacteriology Department at the University of Utah, was our speaker for the evening of November 14. Mr. Austin has made an original contribution of considerable importance in bacteriology research in connection with tuberculosis and skin lesions in cattle and presented to us the results of his research. We are happy to have Mr. Austin among our new members of Phi Sigma.

In January, Mr. C. C. Presnall from the U. S. National Park Service discussed the U. S. National Parks, stressing the importance of the national parks as the greatest out-door educational system in the United States. He illustrated his discussion with a series of interesting slides.

The speaker at our first meeting in February was Dr. W. P. Cottam, in charge of the work in botany at the University of Utah, who gave a beautifully illustrated lecture on the "Effects of Grazing on the Utah Desert". Dr. Cottam was employed during the summers of 1933 and 1934 as a special investigator for the U. S. Forest Service in desert sections of Utah. He checked the present condition of the desert and made a detailed study of the changes which have taken place since the year 1860, and the relation of these changes to grazing. His significant conclusions should help to shape a national policy in regard to our desert country.

On February 28, Dr. A. M. Woodbury, also from the Department of Biology at our University, presented an interesting illustrated lecture upon the subject, "Communities of Life", showing the influence of various factors such as climate, water, and soil composition upon the character and permanence of these communities.

Alpha Lambda Chapter, in keeping with the recent Phi Sigma policy of expansion, made a careful survey of the field of prospective members in the fall and effected contacts during the winter with a number of excellent prospects. These students were invited to our meetings occasionally as our guests, and on March 9 our winter's activities were climaxed with the initiation ceremony for twenty-seven, faculty and students, including Doctor Harold C. Goldthorpe, Professor of Physiological Chemistry, and Mr. Harold Austin, Assistant in the Department of Bacteriology. The other new members are: Helen Banks, Mary Alice Cannon, James Bruce, Mina Fagergren, Arden Gaufin, Jayne Drew Haymond, George James, Jean Linford, Cornelia Collins McGarry, Charlotte Mc-

Grath, Lily Meldrum, Louise Millikin, Janet Mitchell, Harold Norton, Margaret Parsons, Arthur Perry Plummer, Bryant Rees, David Rees, Roy E. Rudolph, Dorothy Sewell, Oliver S. Walsh, James L. Wilding, Evelyn Wilkins, Afton Williams, and Marion Woodbury. Alpha Lambda is proud of its new members and looks forward to an excellent year of activity.

The initiation was followed by a most delightful banquet and ball held at the Newhouse Hotel. Covers were laid for 76.

Election of new officers took place at the meeting on March 28. Those chosen to steer the course of Alpha Lambda through the coming year are: President—Don Grayot; Vice President—Perry Plummer; Secretary—Estelle Calderwood; Treasurer—Harold Norton.

The expansion number of *The Biologist* with its "Red" trimmings brought forth favorable comment from Alpha Lambda members. Dr. Causey's story of Darwin's *Origin of the Species* was pronounced realistic and vivid, and Frank Roberts, author of "Archaeologogenesis", was praised for his versatility, not only as an archaeologist, but as a writer. Dr. A. S. Pearse drew our admiration for his most facetious article on "Being a Member". In spite of his classification of himself as an ordinary member and "something of a combination salad" we are convinced that the chief ingredient of the salad is a "curious cuss". Alpha Lambda Chapter will keep a lookout for such members as Doctor Pearse.

LUCILE ROGERS MARSHALL,
Secretary.

Alpha Mu

President—Noel Larson, Dept. Entomology, Oregon State College, Corvallis, Oregon.

Vice-President—Ewald Rhorman, Dept. Chemistry, c/o Dr. R. J. Williams, Oregon State College, Corvallis, Oregon.

Secretary—Miles E. Drake, School of Pharmacy, c/o E. T. Stuhr, Oregon State College, Corvallis, Oregon.

Treasurer—Alfred Taylor, Dept. Zoology, Oregon State College, Corvallis, Oregon.

For all the biological sciences represented in Oregon State College's new big School of Science, there is but one honorary fraternity—Phi Sigma. In a recent gala informal meeting of the School at what was termed a "Sciomix", members of Phi Sigma were very prominent in the organization and carrying-out of the moving pictures, skits, and other entertainments of the evening. On Thursday, April 4, Dr. Roy Chap-

man Andrews will speak before the student body. His speaking engagement with the college was made possible thru the efforts of the several science honoraries including Phi Sigma.

Miss Elaine Williams, last year's chapter president, dropped in to see some of the members at Christmas time, when she was west for the vacation. She is on a scholarship at the University of Illinois.

A little son was born on January 22, 1935, to Mr. and Mrs. Donald Pentzer at Corvallis. Pentzer is a fellow in horticulture at Oregon State.

A publication has just recently appeared in the Annals of the Entomological Society of America on the blood of insects. It is the result of some rather extensive research work of Alfred Taylor of the Zoology Department.

For the first meeting of the spring term we are planning the start of a so-called pledge week. The seniors, juniors, and possibly a few of the most outstanding sophomores selected will be obliged to remain as pledges for a week or more during which time their names will appear on the various bulletin boards about school as a sort of honor roll showing Phi Sigma as a goal for which undergraduates will want to work. We hope to have two more meetings during the year, but as yet no definite programs have been worked out.

Alpha Mu wishes to extend its greetings to our new chapter, Alpha Nu. Also, we are pleased to realize that we are no longer the baby chapter of the fraternity.

As concerns the "Biologist" a few of the members feel that there are not enough issues per year and not enough interesting material per issue to be worth the cost of one dollar per year. Whether or not they are justified in this objection I can hardly tell, but, being a social fraternity man, I feel that our house quarterly gives more for approximately the same price. This is in the way of cuts. A book without illustrations is no competitor to one even sparsely illustrated. Could not the chapter letters depicting their various activities be accompanied with cuts of campus buildings, outstanding members, chapter officers, or even interiors of biological laboratories. If this plan were financially possible, I firmly believe that interest in the "Biologist" would be infinitely increased.

The last issue was an improvement over previous ones, both in the presence of a cut and the better feature stories. But, for heaven's sake, don't change the cover border. I think it's great!

BUD CROWELL,
Historian.

HOW WORDS LOSE REPUTATION

Language is a circulating medium, as money is, and words, like coins, are apt to lose their value in the course of time. A decline in the exchange rating of a word may be due either to inflation, that is, too promiscuous application, or to discredit, that is, a growing popular suspicion of the soundness of its backing.

The Seven Wise Men of early Greece were called "sophists" as an honorific appellation. But later a "sophist" came to mean a man who pretended to know more than he did or, worse, who sold his wisdom to the highest bidder for the basest of purposes, that of making a wrong cause seem right.

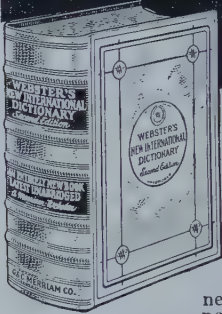
This degenerative process has gone so far that we have no word in good repute and common usage to apply to a group of competent and learned men. The word "scholars" would once have served, but this has fallen from its high estate and come to mean "pupils," that is, those who are being schooled, instead of those who have been schooled. To call a man a "sage" calls up in the average mind the picture of something gray and pedantic, if not green and aromatic. The word "scientist" has become so narrowed and lowered and misapplied that men of science hesitate to use it longer. The titles of "professor" and "expert" are also distinctly losing caste.

It would be a profitable exercise to consider such cases as occur to us of words that we see are gradually becoming lowered or limited and try to discover the cause of their decline and how it may be prevented.

Chats on Science, Edwin E. Slosson

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MR. ERWINE HALL STEWART,
Treasurer of Phi Sigma,
Mesa, Colorado

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Mesa, Colorado.

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